



*A Specification Manual*

**JOHNS-MANVILLE**

**BUILT-UP ROOFS**



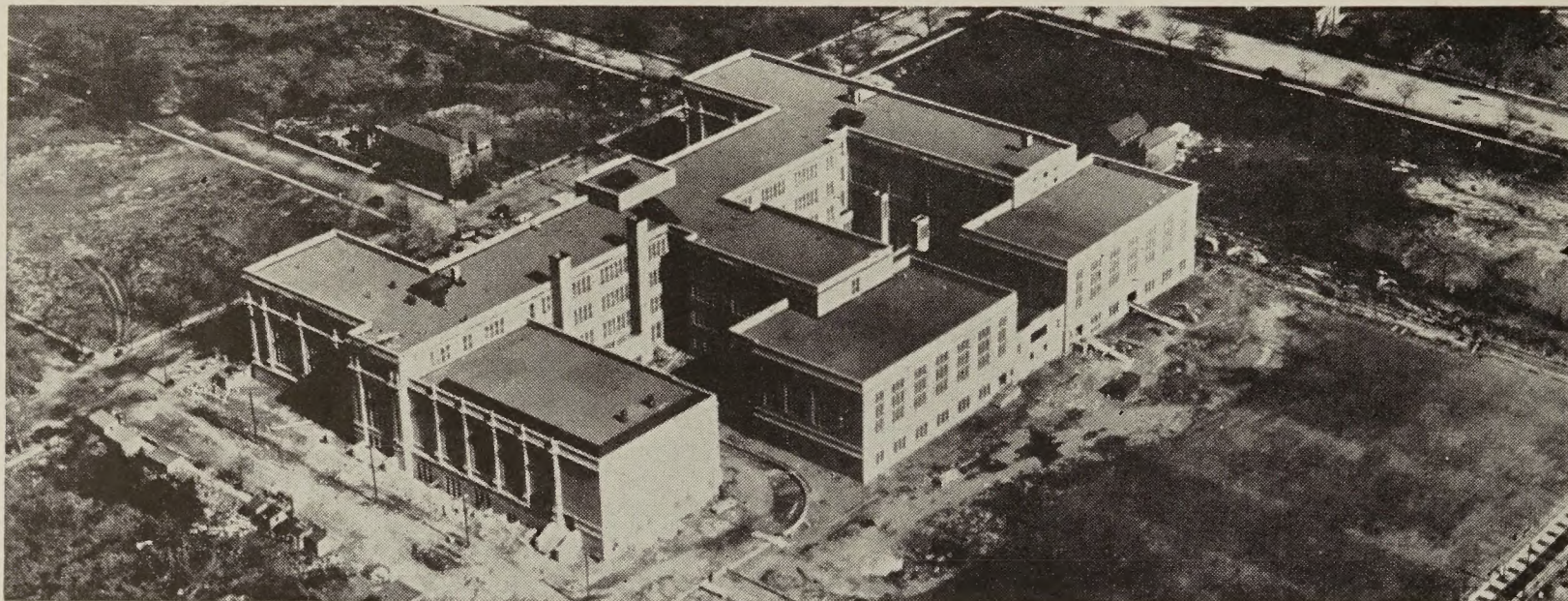
JOHNS-MANVILLE  
**JM**  
PRODUCTS



# JOHNS-MANVILLE

## COMPLETE BUILT-UP ROOF SERVICE

NOTE: The manufacture and sale of all listed products are liable to Federal restriction. Recommendations are, therefore, subject to change.



*There is a Johns-Manville Built-Up roof for every roofing condition.*

## JOHNS-MANVILLE BUILT-UP ROOFS

The function of a built-up roofing specification is to insure, under given conditions, full roof protection to a particular building. The materials and methods specified are conditioned by the length of service required, the pitch of the roof deck, and the construction—wood, steel, concrete or gypsum—of the roof deck. Naturally, these many different conditions lead to many different specifications.

Proper specifications are based on years of experience. They derive their authority from proven performance over long periods of time and under every weather condition.

Johns-Manville—with a background of 86 years in the roofing industry—offers a definite specification for any and every roofing requirement. And, it knows that if J-M roofings are applied in accordance with J-M specifications the

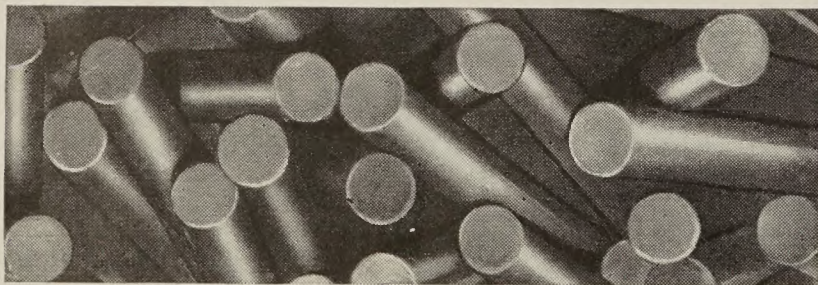
desired results will be obtained. In the following pages are listed the various standard Johns-Manville Built-Up Roofing specifications together with construction data. On pages 6 and 7 is given a table of condensed specifications for the different J-M roofs—smooth or slag-surfaced—with ratings of the Underwriters' Laboratories, Inc.

It is traditional of Johns-Manville to furnish not only proper specifications for existing conditions but also to pioneer in the development of new and improved roofing methods and materials. Perhaps the greatest contribution Johns-Manville has made toward improved roofing practice has been the J-M Asbestos Smooth Surface roof for use on roofs having a pitch of  $\frac{1}{2}$  in. or more to the foot.

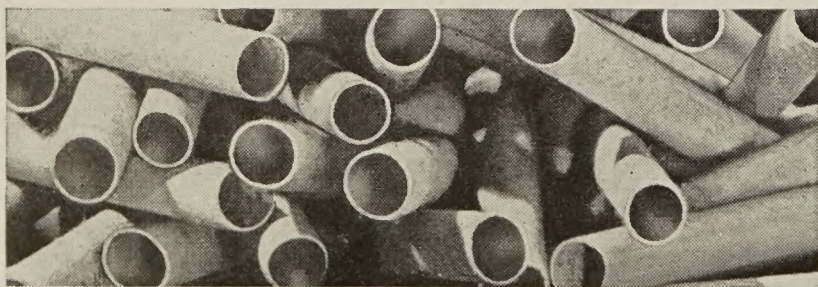
### J-M Asbestos Smooth-Surfaced Roofs Have Many Advantages

The Johns-Manville Asbestos Smooth-Surfaced roof is built up in alternate layers of asphalt-saturated asbestos felt and a high grade roofing asphalt. Because the felts are made of asbestos fibre, they will not support combustion. Since asbestos is a mineral, it cannot rot. The result is a fireproof, rotproof, weatherproof and durable roofing.

A J-M Asbestos roof is a flexible covering of stone. It gives lasting protection from the sun and the weather. As is well-known, the worst enemy of any roof is the sun which eats away the waterproofing saturant and eventually dries out the felts. The result is roof failure. Asbestos roofs resist the sun's drying out action because each asbestos fibre is a tiny solid rod as shown in the illustration. Therefore, no capillary action is possible, and it is impossible for the fibre to act as a wick through which the asphalt may be drawn off by the sun. The fibres in ordinary roofing felts are hollow tubes as illustrated. Through these countless wicks, the sun draws off the asphalt, so essential to the life of the roofing felt.



*Fibres in asbestos roofings are solid. Hence no capillary action is possible, and the asphalt cannot be drawn off by the sun.*

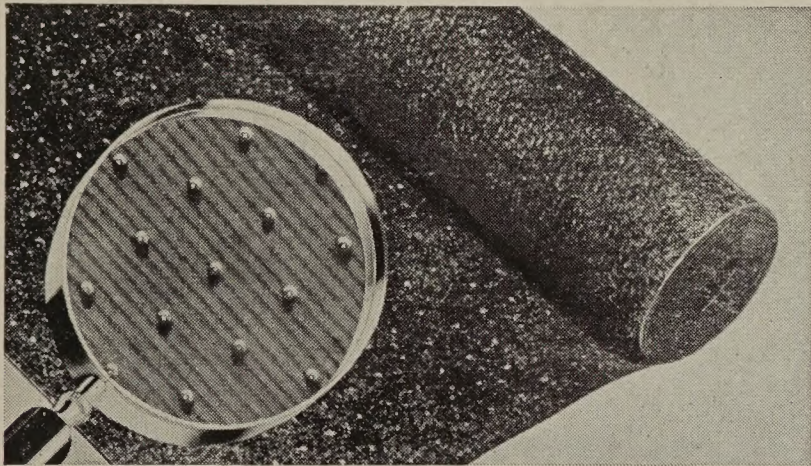


*Fibres in ordinary roofings are tubular. These hollow tubes act as wicks through which the sun draws off the asphalt so essential to the life of the roofing felt.*

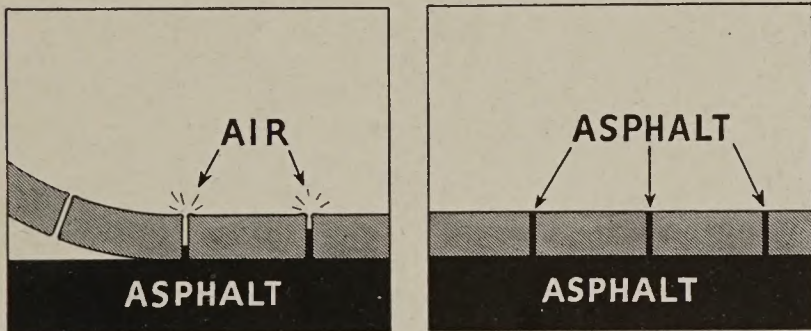


## J-M Asbestos Felts Are Perforated to Make Application Easier and to Eliminate Blisters

Johns-Manville Asbestos felts are applied more quickly and easily than ordinary felts, and the hazard of blisters is practically eliminated—because J-M asbestos felts are perforated. Millions of tiny holes make the felt more flexible. It lays smoother and conforms better to the irregularities of the roof deck. Each perforation serves as a check valve that opens upward (see diagram). When the felts are laid in hot asphalt, these valves allow trapped air to escape. No air bubbles remain underneath—bubbles which might later de-



Asbestos roofing felts are perforated with numerous small holes, spaced  $\frac{1}{2}$  in. apart, which permit the roofing to be laid more quickly and easily, and eliminate the hazard of "blisters."



These two diagrams show what takes place when perforated asbestos felt is laid in hot asphalt.

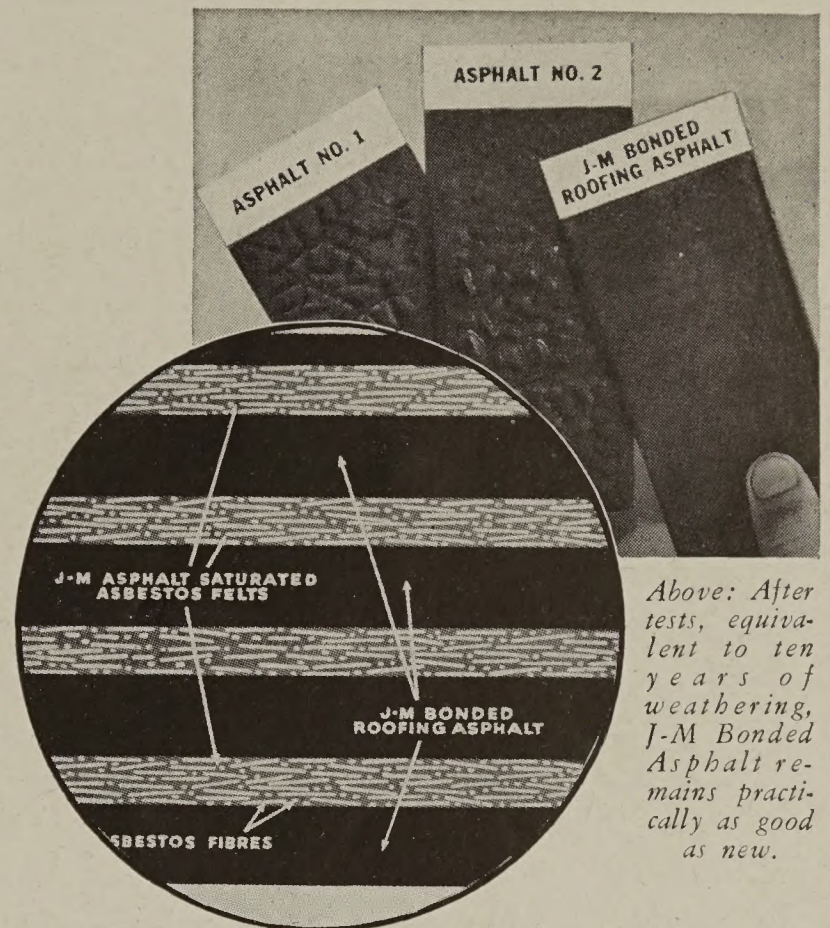
velop into troublesome blisters. The hot asphalt "wells up" through the perforations, completely sealing them from below. The subsequent layer of asphalt then seals them from above.

## J-M Uses a Specially Selected Grade of Asphalt

J-M Bonded Roofing Asphalt has proved to be superior to ordinary asphalts. Tested in the most modern types of weathering machines, Bonded Asphalt remained in virtually its original condition after being subjected to alternate cycles of heat, rain and freezing cold equivalent to ten years of actual service. Ordinary asphalts, tested at the same time, were found to be seriously impaired in water-proofing effectiveness.

## J-M Asbestile System Insures Proper Treatment of Flashing Areas

More than at any other place on the roof, a leak is apt to develop at the junctions formed by the roof deck and a vertical surface. Since these vertical surfaces are constructed



In Circle: This magnified section of J-M Smooth Surface Asbestos roof shows how the network of asbestos fibres in each ply protects the impregnated asphalt within the felt and, at the same time, shields the layer of asphalt below it.

usually of different materials than the roof deck, Johns-Manville has designed several methods of flashing to meet successfully the various conditions encountered. But in all these methods of flashing only three basic J-M materials are needed; J-M 15-lb. Asbestos Roofing Felt, J-M Reinforced Asbestos Base Flashing Material and J-M Asbestile, a plastic asbestos cement.

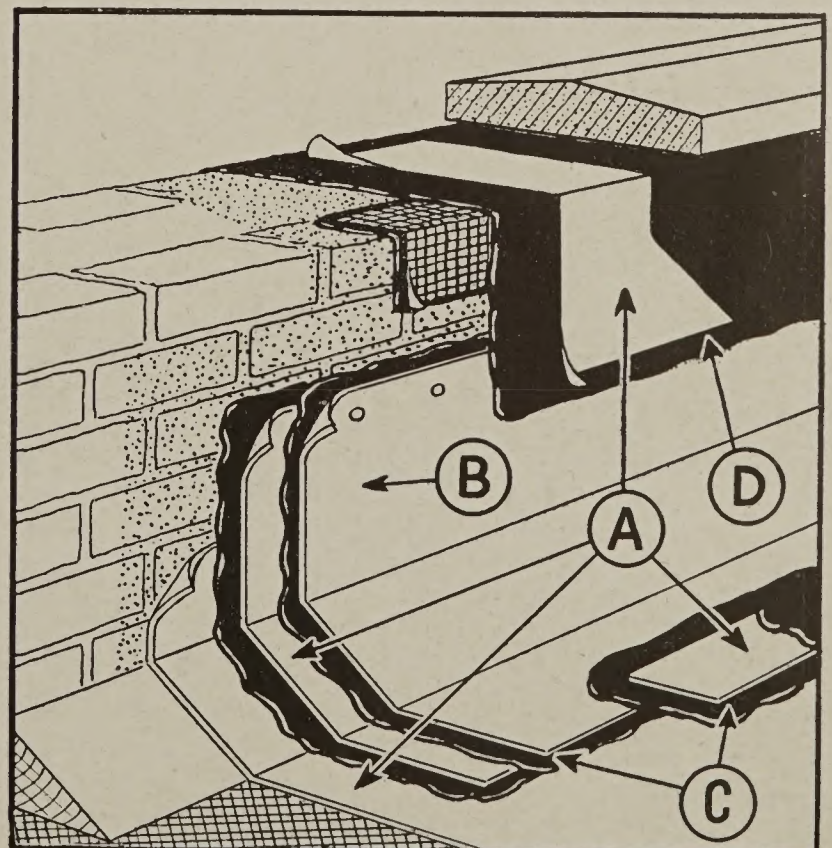


Diagram shows a typical J-M Asbestile through-wall flashing installation. A, represents 15 lb. Asbestos Felt; B, Base Flashing; C, Asphalt; D, Asbestile.





*J-M Rock Cork is here being installed over a layer of roofing felt. It will then be covered with a J-M Built-Up Roof.*

## JOHNS-MANVILLE ROOF INSULATION PAYS FOR ITSELF

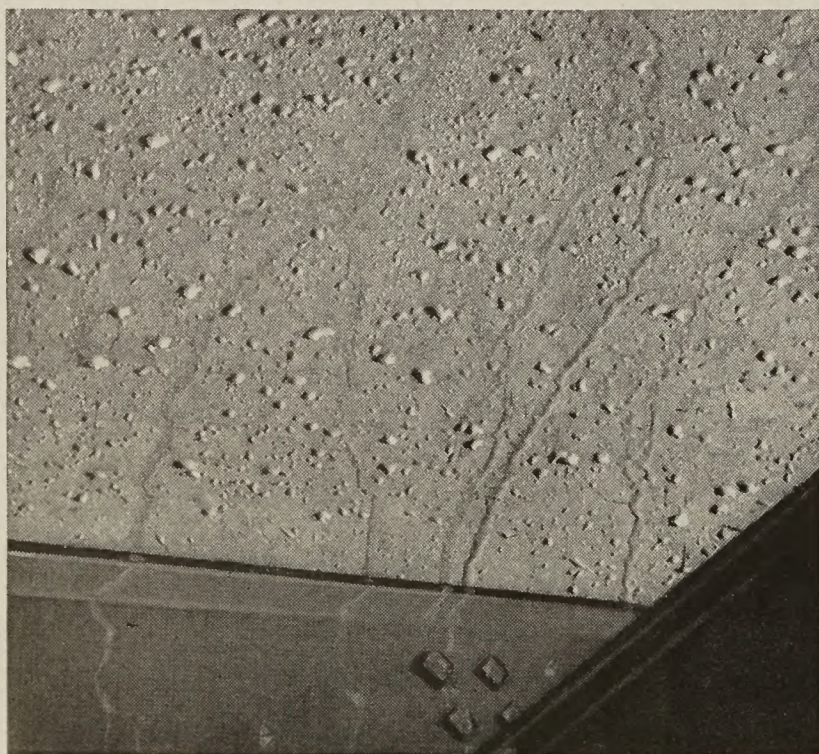
In the construction of roofs for industrial and institutional buildings the use of roof insulation is regarded almost as a "must." The principles involved in insulation are now fairly well recognized by plant engineers. They know, of course, that it retards the passage of heat through the roof; this saves fuel and cuts air-conditioning costs. They know also that insulation helps insure comfortable, uniform working conditions and hence increases production.

In addition, insulation helps protect the roof deck against deterioration and rot which may eventually result in the costly necessity of building a completely new roof deck.

Moreover, an insulated roof prevents condensation and roof drip which may ruin finished ceilings and walls, and even damage equipment and stocks of merchandise.

Roof Insulation also provides protection to the roofing felts. It acts as a "cushion" separating the roofing from the deck and therefore helps prevent the felts from cracking due to the cycles of alternate expansion and contraction in the deck.

The pictures below are actual photographs of damage caused by condensation forming under uninsulated roofs.



*Roof drip, caused by condensation has seriously damaged this ceiling. This could have been prevented by the use of proper roof insulation.*



*Rot, caused by condensation, has destroyed this wood roof deck. This means an expensive repair job.*



Johns-Manville furnishes two types of roofing insulation, J-M Rock Cork and J-M Roofinsul. These insulations are especially designed to receive built-up roofing directly over them. Johns-Manville specifications for their application have been drawn with a great deal of care in order to insure that the insulations will retain their initial efficiency throughout the lifetime of the roof. Specifications call for the insulation to be sealed below and above from moisture which causes loss of efficiency. In addition the insulation is isolated into small areas by "path strippings" of waterproof felts which restricts leak damage to a minimum.

### J-M Rock Cork Roof Insulation

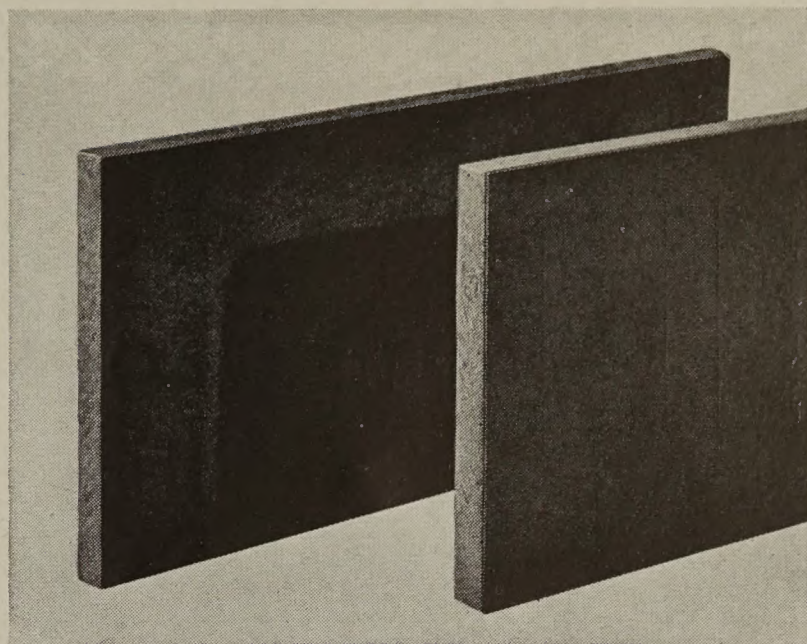
Rock Cork Roof Insulation maintains its efficiency indefinitely. It is made of mineral wool and a waterproof binder, surfaced on one side with J-M 15-lb. Asphalt-saturated Felt applied with a high melting point asphalt. Rock Cork Roof Insulation will not rot, support mold or disintegrate. It is non-capillary and will not swell or shrink. At about 85 deg. F. it will sustain evenly distributed loads of 500 lb. per sq. ft. with a compression not exceeding .015 in. per inch of thickness. When laid, the fibrous nature of Rock Cork permits tight joints, and the sheets conform to irregularities in the deck. Rock Cork Roof Insulation sheets are easy to handle and sufficiently strong to be applied with practically no breakage. Furnished 18 x 36 in.; in thicknesses of 1, 1½ and 2 in.; packed in cartons containing 54, 36 and 27 sq. ft., respectively. Approximate weight per sq. ft., 1 in. thickness, 2.0 lb.; 1½ in. thickness, 2.8 lb.; 2 in. thickness, 3.6 lb.

### J-M Roofinsul

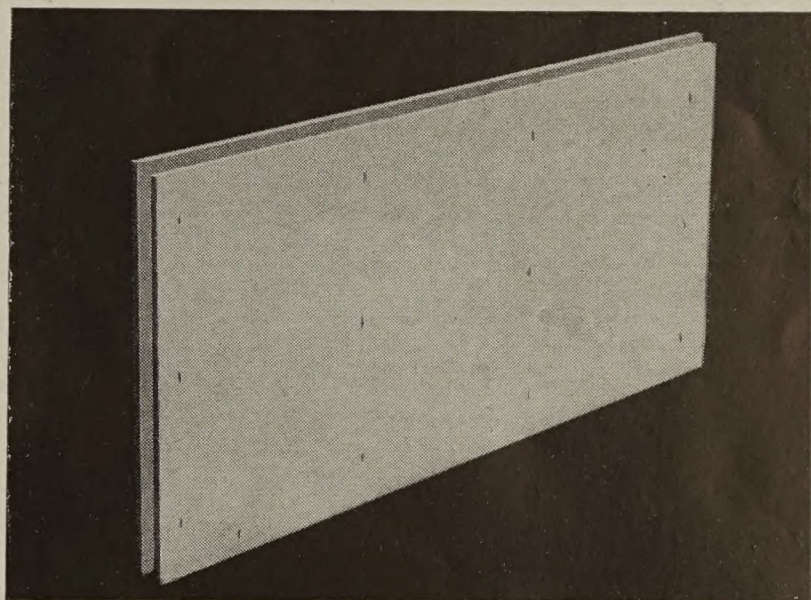
J-M Roofinsul is a light weight, efficient insulation made of southern pine fibre, interlaced, felted and rolled into boards of the most practical size. In addition to its high insulating value, Roofinsul possesses structural strength and



*Here Johns-Manville Roofinsul is being applied. Because of its rigidity, Roofinsul is especially adapted for application on steel decks.*



*Johns-Manville Rock Cork is basically a mineral insulation that cannot rot or decay. It is exceptionally efficient and moisture-resistant. It is felt-sided to provide the ideal felt-to-felt bond with the roof.*



*Johns-Manville Roofinsul is a rigid and structurally strong insulation which provides an efficient, low cost roof insulation for all types of roof decks.*

rigidity. It is easily installed, and can be cut and nailed in the same manner as wood. Roofinsul is supplied 23¾ x 48 in., ½ in. thick, with square edges. Thicknesses of 1, 1½ and 2 in. are also furnished, cemented and stapled together with square edges or with a 1-in. ship-lap joint on all sides. Roofinsul weighs about 0.75 lb. per sq. ft., ½ in. thick.

### Surety Roofing Bonds

All Johns-Manville Built-up Roofs of whatever type will, when desired, be covered by a bond of the National Surety Corp., guaranteeing the performance of the particular roof for a period of from 10 to 20 years, depending on the type of roof applied. This bond is issued only on roofs laid by Johns-Manville Approved Roofing Contractors and passed upon by the Johns-Manville inspection service. No bonds are issued on the Pacific Coast.

Where Johns-Manville Asbestile Flashing is used with J-M Roofing, a flashing endorsement for a 10-year period will be attached to and become a part of the bond.



# Index and Condensed Specifications for

Pitch of Roof per Foot, in Inches	Bond, Years (See Note*)	J-M Specification Number	Page	Number of Plies and Kind of Felt	Number of Moppings Asphalt (A) or Pitch (P)	Weight of Materials, in Pounds per Square								Total Weight per Square, in Pounds			Approved by Underwriters' Lab.
						Sheathing Paper	Felts		Asphalt	Pitch	Primer and/or Roof Coating	Gravel	Slag	Smooth Surface or Crushed Slate	Gravel Surface	Slag Surface	
							Asbestos	Rag									
Without Insulation																	
WOOD DECK ONLY																	
Smooth Surface																	
½ to 6	20	100	8	One 55-lb. Asphalt-Saturated Asbestos Felt Three 15 or 20-lb. Asphalt-Saturated Asbestos Felts	A-3	—	100 or 115	—	90	—	8	—	—	198 or 213	—	—	✓
½ to 6	15	103	8	One 55-lb. Asphalt-Saturated Asbestos Felt Two 15 or 20-lb. Asphalt-Saturated Asbestos Felts	A-2	—	85 or 95	—	60	—	8	—	—	153 or 163	—	—	✓
½ to 6	15	200	9	One No. 45 Asphalt-Saturated Rag Felt Two 15 or 20-lb. Asphalt-Saturated Asbestos Felts	A-2	—	30 or 40	50	60	—	8	—	—	148 or 158	—	—	—
½ to 6	10	202	9	One No. 30 Asphalt-Saturated Rag Felt Two 15 or 20-lb. Asphalt-Saturated Asbestos Felts	A-2	—	30 or 40	33½	60	—	8	—	—	131½ or 141½	—	—	—
½ to 6	20	205	10	One No. 45 Asphalt-Saturated Rag Felt Three 15 or 20-lb. Asphalt-Saturated Asbestos Felts	A-3	—	45 or 60	50	90	—	8	—	—	193 or 208	—	—	—
Crushed Slate Surface																	
1 to 4	10	402	†	Three 15-lb. Asphalt-Saturated Rag Felts Two Split-Sheet Slatekote	A-4	—	110	49	120	—	—	—	—	279	—	—	✓
4 to 6	10	400	†	Two 15-lb. Asphalt-Saturated Rag Felts Two Split-Sheet Slatekote	A-2	—	110	32½	60	—	—	—	—	202½	—	—	✓
WOOD or PRE-CAST GYPSUM DECK																	
Gravel or Slag Surface																	
Not to exceed 2	20	600**	14	One ply Rosin-Sized Paper (over wood only) Five 15-lb. Tar-Saturated Asbestos Felts	P-4	5	81	—	—	150	—	400	300	—	636	536	✓
Not to exceed 2	15	604**	15	One ply Rosin-Sized Paper (over wood only) Four 15-lb. Tar-Saturated Asbestos Felts	P-3	5	65	—	—	125	—	400	300	—	595	495	✓
2 to 6	10	601**	15	One ply Rosin-Sized Paper (over wood only) Five 15-lb. Tar-Saturated Asbestos Felts	P-4 A-1	5	81	—	45	80	—	—	250	—	—	461	✓
NON-COMBUSTIBLE DECK																	
(except STEEL)																	
Smooth Surface																	
½ to 6	20	101	11	One 55-lb. Asphalt-Saturated Asbestos Felt Two 15 or 20-lb. Asphalt-Saturated Asbestos Felts	A-3	—	85 or 95	—	90	—	16	—	—	191 or 201	—	—	✓
½ to 6	15	201	11	One No. 45 Asphalt-Saturated Rag Felt Two 15 or 20-lb. Asphalt-Saturated Asbestos Felts	A-3	—	30 or 40	50	90	—	16	—	—	186 or 196	—	—	—
½ to 6	10	203	12	One No. 30 Asphalt-Saturated Rag Felt Two 15 or 20-lb. Asphalt-Saturated Asbestos Felts	A-3	—	30 or 40	33½	90	—	16	—	—	16½ or 179½	—	—	—
(Except PRE-CAST GYPSUM or STEEL)																	
Gravel or Slag Surface																	
Not to exceed 2	20	602**	16	Four 15-lb. Tar-Saturated Asbestos Felts	P-5	—	65	—	—	200	—	400	300	—	665	565	✓
Not to exceed 2	15	605**	16	Three 15-lb. Tar-Saturated Asbestos Felts	P-4	—	40	—	—	175	—	400	300	—	624	524	✓
2 to 6	10	603**	17	Four 15-lb. Tar-Saturated Asbestos Felts	P-4 A-1	—	65	—	45	100	—	—	250	—	—	460	✓
Crushed Slate Surface																	
1 to 4	10	403	†	Three 15-lb. Asphalt-Saturated Rag Felts Two Split-Sheet Slatekote	A-5	—	110	49	150	—	16	—	—	325	—	—	✓
4 to 6	10	401	†	One 15-lb. Asphalt-Saturated Rag Felt Two Split-Sheet Slatekote	A-3	—	110	16	90	—	16	—	—	232	—	—	✓
Under Promenade Tile																	
Not to exceed 1	§	612**	17	Five 15-lb. Tar-Saturated Asbestos Felts	P-6	—	81	—	—	200	—	—	—	—	281	—	—



Johns-Manville Bonded Bu

CORRECTION

We have discontinued the manufacture of our 20 lb. Asphalt Saturated Asbestos Felts mentioned in this J-M Specification Manual.

The outstanding performance of the 15 lb. Perforated Asbestos Felt has proven to have so many superior qualities that we have eliminated the 20 lb. Felt from all of our specifications.

Pitch of Roof per Foot, in Inches	Bond, Years (See Note*)	J-M Specification Number	Page	Number of Plies and Kind of Felt	Number of Moppings Asphalt (A) or Pitch (P)	Weight of Material per Square			
						Asphalt-saturated Fabric	Asbestos	Rag	Asphalt

With Insulation

STEEL DECK

Steel decks require insulation under any type of built-up roof. See Specifications No. 502 and No. 1002 and the section "Application of Roofing over Insulation," on opposite page.

APPLICATION OF INSULATION

(To be overlaid with a J-M Built-up Roof employing ASPHALT)

	500	19	For Application of insulation over a WOOD or PRECAST GYPSUM DECK
	501	20	For Application of insulation over a NON-COMBUSTIBLE DECK (except Steel)
	502	19	For Application of insulation over a STEEL DECK

(To be overlaid with a J-M Built-up Roof employing COAL TAR PITCH)

	1000	21	For Application of insulation over a WOOD or PRECAST GYPSUM DECK
	1001	20	For Application of insulation over a NON-COMBUSTIBLE DECK (except Steel)
	1002	21	For Application of insulation over a STEEL DECK

APPLICATION OF ROOFING OVER INSULATION (Any type of deck)

Smooth Surface

1/2 to 6	20	125	13	Four 15 or 20-lb. Asphalt-Saturated Asbestos Felts	A-5	—	60 or 80	—	130	—	8	—	—	198 or 218	—	—	✓
1/2 to 6	15	126	13	Three 15 or 20-lb. Asphalt-Saturated Asbestos Felts	A-4	—	45 or 60	—	100	—	8	—	—	153 or 168	—	—	✓
1/2 to 6	10	127	†	One 15-lb. Bonded Asphalt-Saturated Rag Felt Two 15 or 20-lb. Asphalt-Saturated Asbestos Felts	A-4	—	30 or 40	16	100	—	8	—	—	154 or 164	—	—	—

Gravel or Slag Surface

Not to exceed 2	20	602**	16	Four 15-lb. Tar-Saturated Asbestos Felts	P-5	—	65	—	—	200	—	400	300	—	665	565	✓
Not to exceed 2	15	605**	16	Three 15-lb. Tar-Saturated Asbestos Felts	P-4	—	49	—	—	175	—	400	300	—	624	524	✓
2 to 6	10	603**	17	Four 15-lb. Tar-Saturated Asbestos Felts	P-4 A-1	—	65	—	45	100	—	—	250	—	—	460	✓

SPRAY POND

Smooth Surface—Wood Deck

Not to exceed 2	10	110	10	One 55-lb. Asphalt-Saturated Asbestos Felt One ply Type B Waterproofing Fabric Two 15 or 20-lb. Asphalt-Saturated Asbestos Felts	A-3	11	85 or 95	—	115	—	—	—	—	211 or 221	—	—	—
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Smooth Surface—Non-combustible Deck

Not to exceed 2	10	111	12	One 55-lb. Asphalt-Saturated Asbestos Felt One ply Type B Waterproofing Fabric Two 15 or 20-lb. Asphalt-Saturated Asbestos Felts	A-4	11	85 or 95	—	145	—	8 to 24	—	—	249 to 275	—	—	—
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Gravel or Slag Surface (Double Surfacing)—Non-combustible Deck

Not to exceed 1/2	§	613**	18	Four 15-lb. Tar-Saturated Asbestos Felts	P-6	—	65	—	—	300	—	700	500	—	1065	865	—
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NOTES:

- \* No roofing bonds are issued on the Pacific Coast.
- \*\* Available, also, employing rag felt instead of asbestos felt.
- † Detailed specification does not appear in these pages, but will be sent free on application.
- \*\*\* Class A Underwriters' rating on pitches to and including 3" per foot.
- § Bond term on application.



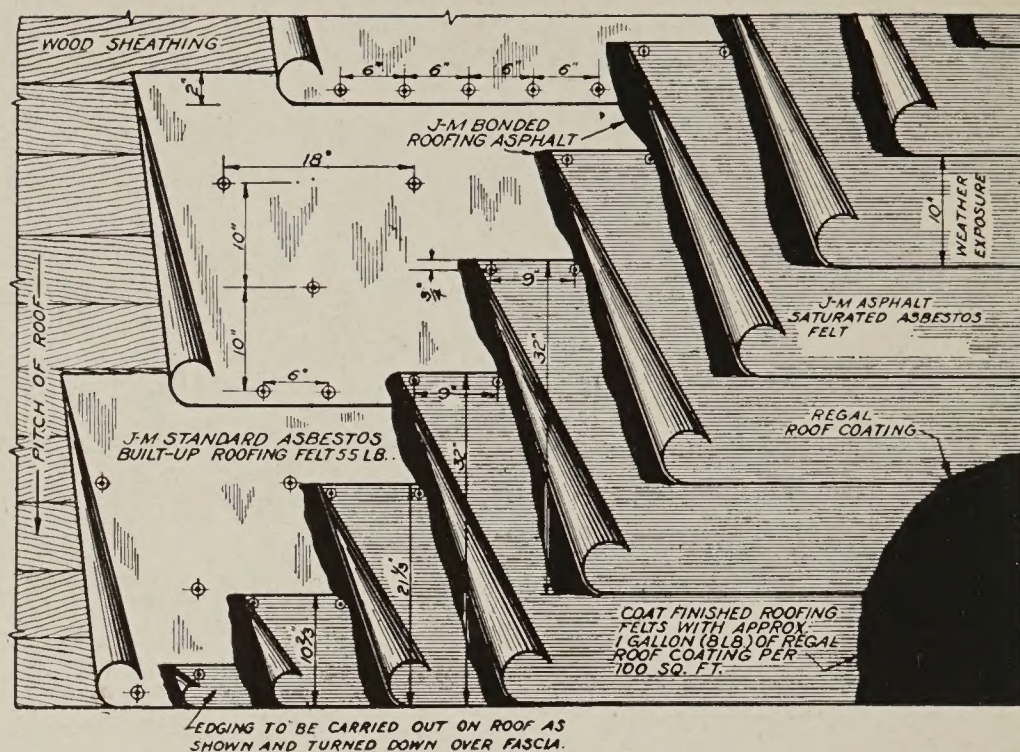
## SPECIFICATION No. 100

## J-M 20-YEAR ROOF OVER WOOD DECKS

Surface: SMOOTH

Felts: ASBESTOS

Waterproofing: ASPHALT

Inclines:  $\frac{1}{2}$  in. to 6 inches per foot

### BILL OF MATERIALS PER 100 SQ. FT.

BASE FELT: 1 layer of J-M Standard Asbestos Built-up Roofing Felt. 55 lb.  
 FINISHING FELTS: 3 layers of J-M 15-lb. Perforated Asbestos Felt or 20-lb. Asphalt-Saturated Asbestos Roofing Felt...45 or 60 lb.  
 ASPHALT: J-M Bonded Roofing Asphalt..... 90 lb.  
 ROOF COATING: J-M Regal Roof Coating (Black) (8 lb. per gal.) 1 gal.

### ROOF DECK

Roof construction, including cants, coves or fillets, shall be properly graded to gutters and roof drains, leaving all surfaces smooth, clean, sound and dry, in satisfactory condition to receive the roofing.

### INSTALLATION

General—All felts shall be turned up 2" on all vertical surfaces without being cemented thereto. All nails shall be driven through flat metal disks.

Roofing—Lay one thickness of the base felt, lapping the sheets 2" and nailing at 6" centers through the laps and at 18" centers through the longitudinal center of each sheet, in two lines spaced 10" apart, the nails to be staggered.

Over the base felt, lay three plies of the 15 or 20-lb. felt, lapping each sheet 22" over the preceding one, mopping the full width under each with the asphalt and nailing at 9" centers adjacent to the back edge.

Coat the entire surface with the roof coating.

Flashing—(Copy from J-M Standard Specification for Flashing, page 26.)

(If a bond is required, add the following:)

### GUARANTEE

The work shall be done by a roofing contractor approved by the manufacturer. The roofing contractor shall furnish a Johns-Manville Twenty-Year Guaranty Bond.

## SPECIFICATION No. 103

## J-M 15-YEAR ROOF OVER WOOD DECKS

Surface: SMOOTH

Waterproofing: ASPHALT

Felts: ASBESTOS

Inclines:  $\frac{1}{2}$  in. to 6 in. per ft.

### BILL OF MATERIALS PER 100 SQ. FT.

BASE FELT: 1 layer of J-M Standard Asbestos Built-up Roofing Felt 55 lb.  
 FINISHING FELTS: 2 layers of J-M 15-lb. Perforated Asbestos Felt or 20-lb. Asphalt-Saturated Asbestos Roofing Felt...30 or 40 lb.  
 ASPHALT: J-M Bonded Roofing Asphalt..... 60 lb.  
 ROOF COATING: J-M Regal Roof Coating (Black) (8 lb. per gal.) 1 gal.

### ROOF DECK

Roof construction, including cants, coves or fillets, shall be properly graded to gutters and roof drains, leaving all surfaces smooth, clean, sound and dry, in satisfactory condition to receive the roofing.

### INSTALLATION

General—All felts shall be turned up 2" on all vertical surfaces without being cemented thereto. All nails shall be driven through flat metal disks.

Roofing—Lay one thickness of the base felt, lapping the sheets 2" and nailing at 6" centers through the laps and at 18" centers through the longitudinal center of each sheet, in two lines spaced 10" apart, the nails to be staggered.

Over the base felt, lay two plies of the 15 or 20-lb. felt, lapping each sheet 17" over the preceding one, mopping the full width under each with the asphalt and nailing at 9" centers adjacent to the back edge.

Coat the entire surface with the roof coating.

Flashing—(Copy from J-M Standard Specification for Flashing, page 26.)

(If a bond is required, add the following:)

### GUARANTEE

The work shall be done by a roofing contractor approved by the manufacturer. The roofing contractor shall furnish a Johns-Manville Fifteen-Year Guaranty Bond.



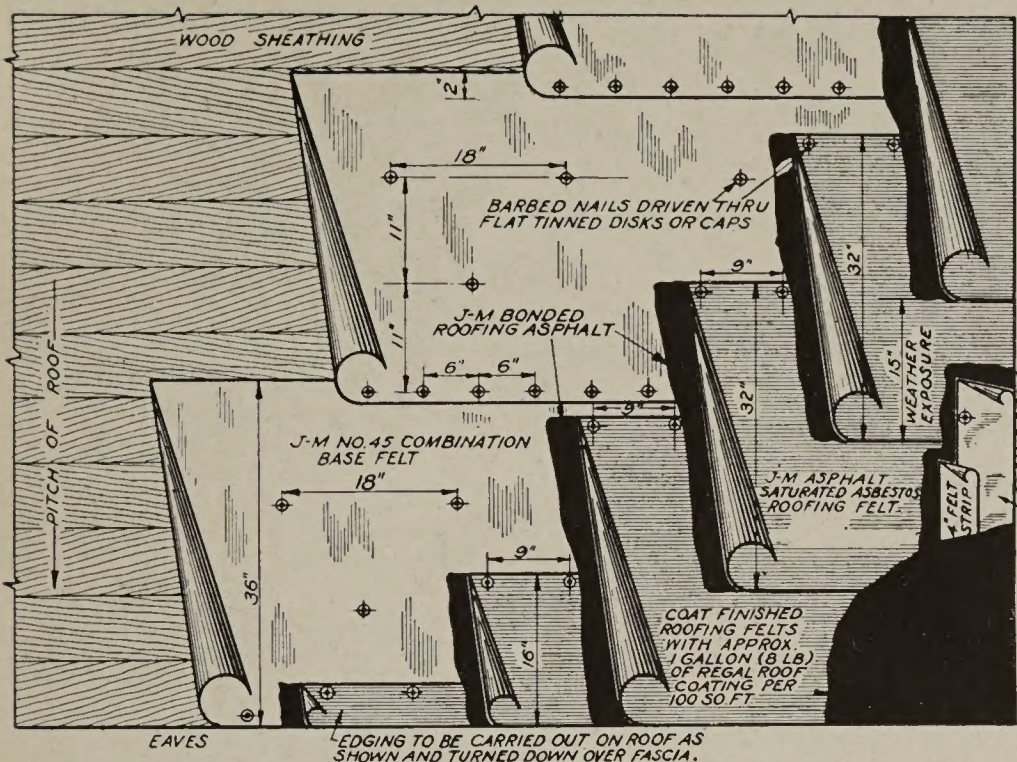
## J-M 15-YEAR ROOF OVER WOOD DECKS

Surface: SMOOTH

Felts: ASBESTOS and RAG

Waterproofing: ASPHALT

Inclines:  $\frac{1}{2}$  in. to 6 inches per foot



### BILL OF MATERIALS PER 100 SQ. FT.

BASE FELT: 1 layer of J-M No. 45 Base Felt (Rag Felt, 50 lbs. per 108 sq. ft.)	50 lb.
FINISHING FELTS: 2 layers of J-M 15-lb. Perforated Asbestos Felt or 20-lb. Asphalt-Saturated Asbestos Roofing Felt...30 or 40 lb.	
ASPHALT: J-M Bonded Roofing Asphalt	60 lb.
ROOF COATING: J-M Regal Roof Coating (Black) (8 lb. per gal.)	1 gal.

### ROOF DECK

Roof construction, including cants, coves or fillets, shall be properly graded to gutters and roof drains, leaving all surfaces smooth, clean, sound and dry, in satisfactory condition to receive the roofing.

### INSTALLATION

General—All felts shall be turned up 2" on all vertical surfaces without being cemented thereto. All nails shall be driven through flat metal disks.

Roofing—Lay one thickness of the base felt, lapping the sheets 2" and nailing at 6" centers through the laps and at 18" centers through the longitudinal center of each sheet in two lines spaced 11" apart, the nails to be staggered.

Over the base felt, lay two plies of the 15 or 20-lb. felt, lapping each sheet 17" over the preceding one, mopping the full width under each with the asphalt and nailing at 9" centers adjacent to the back edge.

Coat the entire surface with the roof coating.

Flashing—(Copy from J-M Standard Specification for Flashing, page 26.)

(If a bond is required, add the following:)

### GUARANTEE

The work shall be done by a roofing contractor approved by the manufacturer. The roofing contractor shall furnish a Johns-Manville Fifteen-Year Guaranty Bond.

### SPECIFICATION No. 202

## J-M 10-YEAR ROOF OVER WOOD DECKS

Surface: SMOOTH      Felts: ASBESTOS and RAG

Waterproofing: ASPHALT

Inclines:  $\frac{1}{2}$  in. to 6 inches per foot

### BILL OF MATERIALS PER 100 SQ. FT.

BASE FELT: 1 layer of J-M No. 30 Combination Base Felt (Rag Felt, 33½ lbs. per 108 sq. ft.)	33½ lb.
FINISHING FELTS: 2 layers of J-M 15-lb. Perforated Asbestos Felt or 20-lb. Asphalt-Saturated Asbestos Roofing Felt...30 or 40 lb.	
ASPHALT: J-M Bonded Roofing Asphalt	60 lb.
ROOF COATING: J-M Regal Roof Coating (Black) (8 lb. per gal.)	1 gal.

### ROOF DECK

Roof construction, including cants, coves or fillets, shall be properly graded to gutters and roof drains, leaving all surfaces smooth, clean, sound and dry, in satisfactory condition to receive the roofing.

### INSTALLATION

General—All felts shall be turned up 2" on all vertical surfaces without being cemented thereto. All nails shall be driven through flat metal disks.

Roofing—Lay one thickness of the base felt, lapping the sheets 2" and nailing at 6" centers through the laps and at 18" centers through the longitudinal center of each sheet, in two lines spaced 11" apart, the nails to be staggered.

Over the base felt, lay two plies of the 15 or 20-lb. felt, lapping each sheet 17" over the preceding one, mopping the full width under each with the asphalt and nailing at 9" centers adjacent to the back edge.

Coat the entire surface with the roof coating.

Flashing—(Copy from J-M Standard Specification for Flashing, page 26.)

(If a bond is required, add the following:)

### GUARANTEE

The work shall be done by a roofing contractor approved by the manufacturer. The roofing contractor shall furnish a Johns-Manville Ten-Year Guaranty Bond.



## SPECIFICATION No. 205

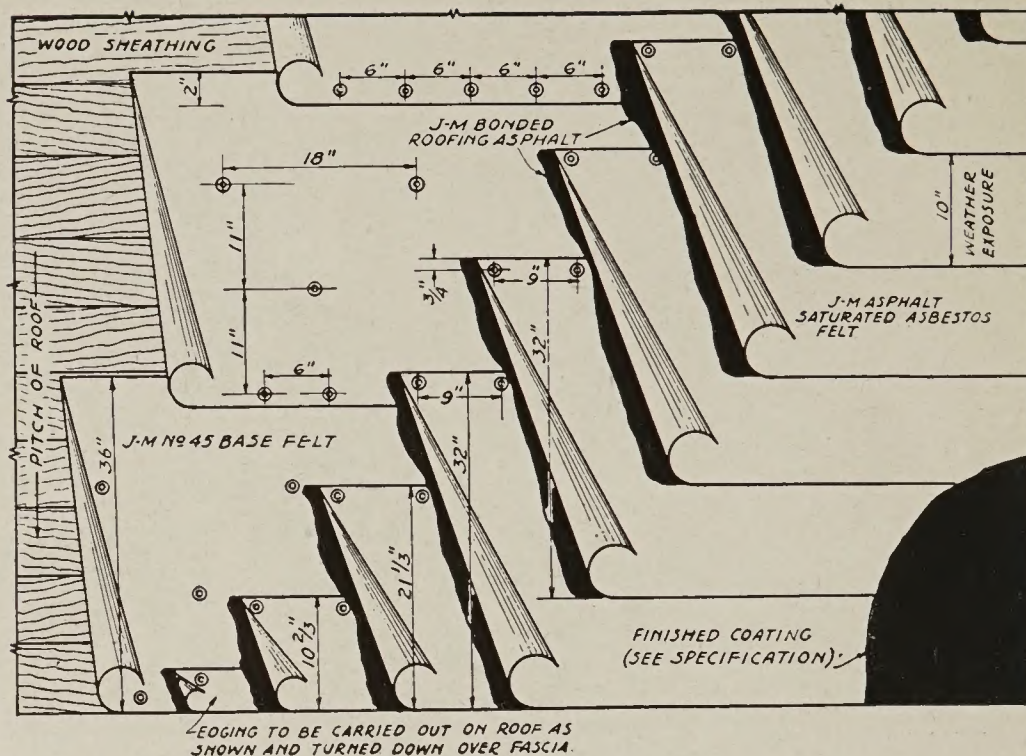
# J-M 20-YEAR ROOF OVER WOOD DECKS

Surface: SMOOTH

Felts: ASBESTOS and RAG

Waterproofing: ASPHALT

Inclines: 1/2 in. to 6 inches per foot



## BILL OF MATERIALS PER 100 SQ. FT.

BASE FELT: 1 layer of J-M No. 45 Base Felt (Rag Felt, 50 lbs. per 108 sq. ft.)	50 lb.
FINISHING FELTS: 3 layers of J-M 15-lb. Perforated Asbestos Felt or 20-lb. Asphalt-Saturated Asbestos Roofing Felt...45 or 60 lb.	
ASPHALT: J-M Bonded Roofing Asphalt	90 lb.
ROOF COATING: J-M Regal Roof Coating (Black) (8 lb. per gal.)	1 gal.

## ROOF DECK

Roof construction, including cants, coves or fillets, shall be properly graded to gutters and roof drains, leaving all surfaces smooth, clean, sound and dry, in satisfactory condition to receive the roofing.

## INSTALLATION

General—All felts shall be turned up 2' on all vertical surfaces without being cemented thereto. All nails shall be driven through flat metal disks.

## GUARANTEE

The work shall be done by a roofing contractor approved by the manufacturer. The roofing contractor shall furnish a Johns-Manville Twenty-Year Guaranty Bond.

## SPECIFICATION No. 110

# J-M 10-YEAR ROOF OVER WOOD SPRAY DECKS

Surface: SMOOTH

Felts: ASBESTOS and ASPHALT-SATURATED FABRIC

Waterproofing: ASPHALT WATERPROOFING CEMENT

Inclines: Not to exceed 2 inches per foot

## BILL OF MATERIALS PER 100 SQ. FT.

BASE FELT: 1 layer of J-M Standard Asbestos Roofing Felt	55 lb.
WATERPROOFING FABRIC: 1 layer of J-M Type B Asphalt-Saturated Fabric (11 lbs. per 112 sq. ft.)	11 lb.
FINISHING FELTS: 2 layers of J-M 15-lb. Perforated Asbestos Felt or 20-lb. Asphalt-Saturated Asbestos Roofing Felt	30 or 40 lb.
WATERPROOFING CEMENT: J-M Standard Asphalt Waterproofing Cement. For mopping between felts	90 lb.
For surface finish	25 lb.

## ROOF DECK

(Copy from Specification No. 205, above.)

## INSTALLATION

General—All roofing felts shall be turned up 2' on all vertical surfaces without being cemented thereto. All nails shall be driven through flat metal disks.

Roofing—Lay one ply of the base felt, lapping the sheet 2' and nailing at 6" centers through the laps and at 18" centers through the longitudinal center of each sheet, in two lines spaced 10" apart, the nails to be staggered.

Over the base felt lay one ply of the waterproofing fabric, lapping each sheet 3' and mopping the full width under each with the asphalt waterproofing cement.

Over the waterproofing fabric lay two plies of the 15 or 20-lb. felt, lapping each sheet 17" over the preceding one, mopping the full width under each with the asphalt waterproofing cement and nailing at 9" centers adjacent to the back edge.

Coat the entire surface with not less than 25 lbs. of the asphalt waterproofing cement per 100 sq. ft.

Flashing—(Copy from J-M Standard specification for Flashing, page 26.)

(If a bond is required, add the following:)

## GUARANTEE

(Copy from Specification No. 205, above, except change to "Ten-Year".)



## SPECIFICATION No. 101

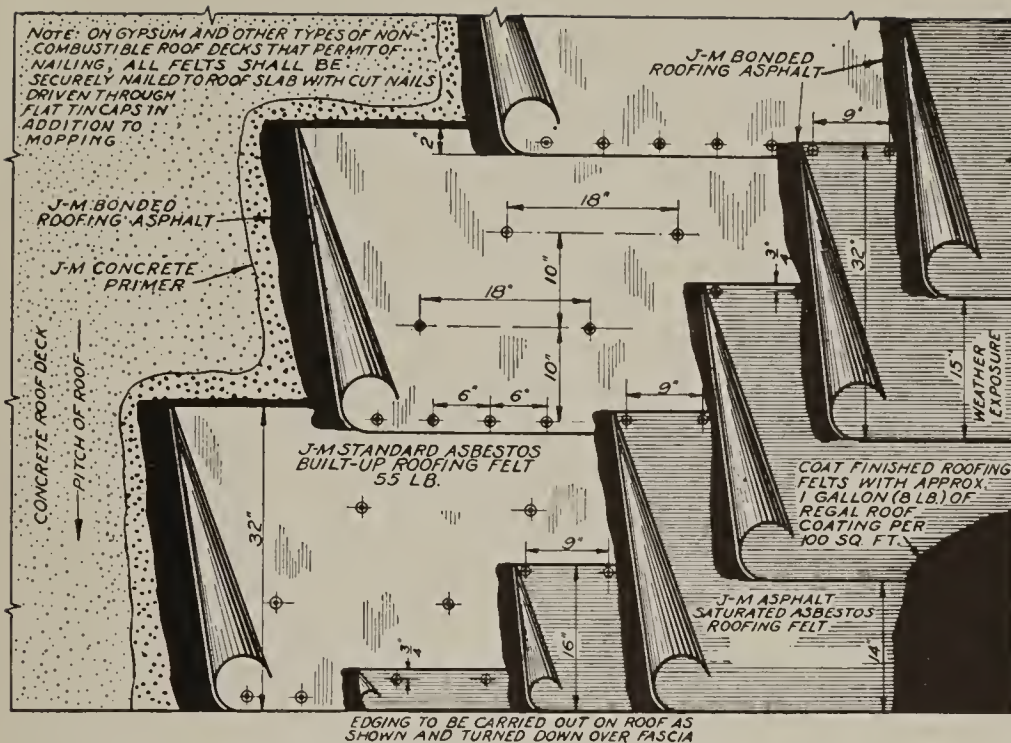
# J-M 20-YEAR ROOF OVER NON-COMBUSTIBLE DECKS

Surface: SMOOTH

Felts: ASBESTOS

Waterproofing: ASPHALT

Inclines: 1/2 in. to 6 inches per foot



## BILL OF MATERIALS PER 100 SQ. FT.

BASE FELT: 1 layer of J-M Standard Asbestos Built-Up Roofing Felt	55 lb.
FINISHING FELTS: 2 layers of J-M 15-lb. Perforated Asbestos Felt or 20-lb. Asphalt-Saturated Asbestos Roofing Felt...	30 or 40 lb.
PRIMER: J-M Concrete Primer (8 lb. per gal.):	
Over concrete.....	1 gal.
Over gypsum.....	1 1/2 to 2 gal.
ASPHALT: J-M Bonded Roofing Asphalt.....	90 lb.
ROOF COATING: J-M Regal Roof Coating (Black) (8 lb. per gal.)	1 gal.

## ROOF DECK

Roof construction, including cants, coves or fillets, shall be properly graded to gutters and roof drains, leaving all surfaces smooth, clean, sound and dry, in satisfactory condition to receive the roofing.

## INSTALLATION

General—All felts shall be turned up 2" on all vertical surfaces without being cemented thereto. All nails shall be driven through flat metal disks.

Roofing—Coat all surfaces, which are to receive the roofing, with the primer and allow to dry. Where necessary, on gypsum, apply two coatings.

If deck is composed of precast units, the primer and asphalt shall be omitted 4" each side of all joints.

Lay one thickness of the base felt, lapping the sheets 2", mopping the full width under each with the asphalt and, if roof construction permits, nailing at 6" centers through the laps and at 18" centers through the longitudinal center of each sheet in two lines spaced 10" apart, the nails to be staggered.

Over the base felt, lay two plies of the 15 or 20-lb. felt, lapping each sheet 17" over the preceding one, mopping the full width under each with the asphalt and, if roof construction permits, nailing at 9" centers adjacent to the back edge.

With nailing strips provided as required, nail each sheet of the base felt at 6" centers at each nailing strip. Nail each sheet of the 15 or 20-lb. felt at each nailing strip 3/4" from the back edge.

Coat the entire surface with the roof coating.

Flashing—(Copy from J-M Standard Specification for Flashing, page 26.)

(If a bond is required, add the following:)

## GUARANTEE

The work shall be done by a roofing contractor approved by the manufacturer. The roofing contractor shall furnish a Johns-Manville Twenty-Year Guaranty Bond.

## SPECIFICATION No. 201

# J-M 15-YEAR ROOF OVER NON-COMBUSTIBLE DECKS

Surface: SMOOTH      Felts: ASBESTOS and RAG  
Waterproofing: ASPHALT  
Inclines: 1/2 in. to 6 ins. per ft.

## BILL OF MATERIALS PER 100 SQ. FT.

BASE FELT: 1 layer of J-M No. 45 Base Felt (Rag Felt, 50 lb. per 108 sq. ft.).....	50 lb.
FINISHING FELTS: 2 layers of J-M 15-lb. Perforated Asbestos Felt or 20-lb. Asphalt-Saturated Asbestos Roofing Felt...30 or 40 lb.	
PRIMER: J-M Concrete Primer (8 lb. per gal.):	
Over concrete.....	1 gal.
Over gypsum.....	1 1/2 to 2 gal.
ASPHALT: J-M Bonded Roofing Asphalt.....	90 lb.
ROOF COATING: J-M Regal Roof Coating (Black) (8 lb. per gal.)	1 gal.

## ROOF DECK

Roof construction, including cants, coves or fillets, shall be properly graded to gutters and roof drains, leaving all surfaces smooth, clean, sound and dry, in satisfactory condition to receive the roofing.

## INSTALLATION

General—(Copy from Specification No. 101, above.)

Roofing—(Copy from Specification No. 101, above, changing the spacing of the nails from 10" to 11".)

Flashing—(Copy from J-M Standard Specification for Flashing, page 26.)

(If a bond is required, add the following:)

## GUARANTEE

The work shall be done by a roofing contractor approved by the manufacturer. The roofing contractor shall furnish a Johns-Manville Fifteen-Year Guaranty Bond.



SPECIFICATION No. 203

J-M 10-YEAR ROOF  
OVER  
NON-COMBUSTIBLE  
DECKS

Surface: SMOOTH      Felts: ASBESTOS and RAG  
Waterproofing: ASPHALT  
Inclines: 1/2 in. to 6 inches per foot

BILL OF MATERIALS PER 100 SQ. FT.

BASE FELT: 1 layer of J-M No. 30 Combination Base Felt (Rag Felt, 33 1/2 lb. per 108 sq. ft.)	33 1/2 lb.
FINISHING FELTS: 2 layers of J-M 15-lb. Perforated Asbestos Felt or 20-lb. Asphalt-Saturated Asbestos Roofing Felt	30 or 40 lb.
PRIMER: J-M Concrete Primer (8 lb. per gal.):	
Over concrete	1 gal.
Over gypsum	1 1/2 to 2 gal.
ASPHALT: J-M Bonded Roofing Asphalt	90 lb.
ROOF COATING: J-M Regal Roof Coating (Black) (8 lb. per gal.)	1 gal.

ROOF DECK

Roof construction, including cants, coves or fillets, shall be properly graded to gutters and roof drains, leaving all surfaces smooth, clean, sound and dry, in satisfactory condition to receive the roofing.

INSTALLATION

General—(Copy from Specification No. 101, on previous page.)  
Roofing—(Copy from Specification No. 101, on previous page, changing the spacing of the nails from 10" to 11".)  
Flashing—(Copy from J-M Standard Specification for Flashing, page 26.)

(If a bond is required, add the following:)

GUARANTEE

The work shall be done by a roofing contractor approved by the manufacturer. The roofing contractor shall furnish a Johns-Manville Ten-Year Bond.

SPECIFICATION No. 111

J-M 10-YEAR ROOF  
OVER  
NON-COMBUSTIBLE  
SPRAY DECKS

Surface: SMOOTH  
Felts: ASBESTOS and ASPHALT SATURATED FABRIC  
Waterproofing: ASPHALT WATER-PROOFING CEMENT  
Inclines: Not to exceed 2 inches per foot

BILL OF MATERIALS PER 100 SQ. FT.

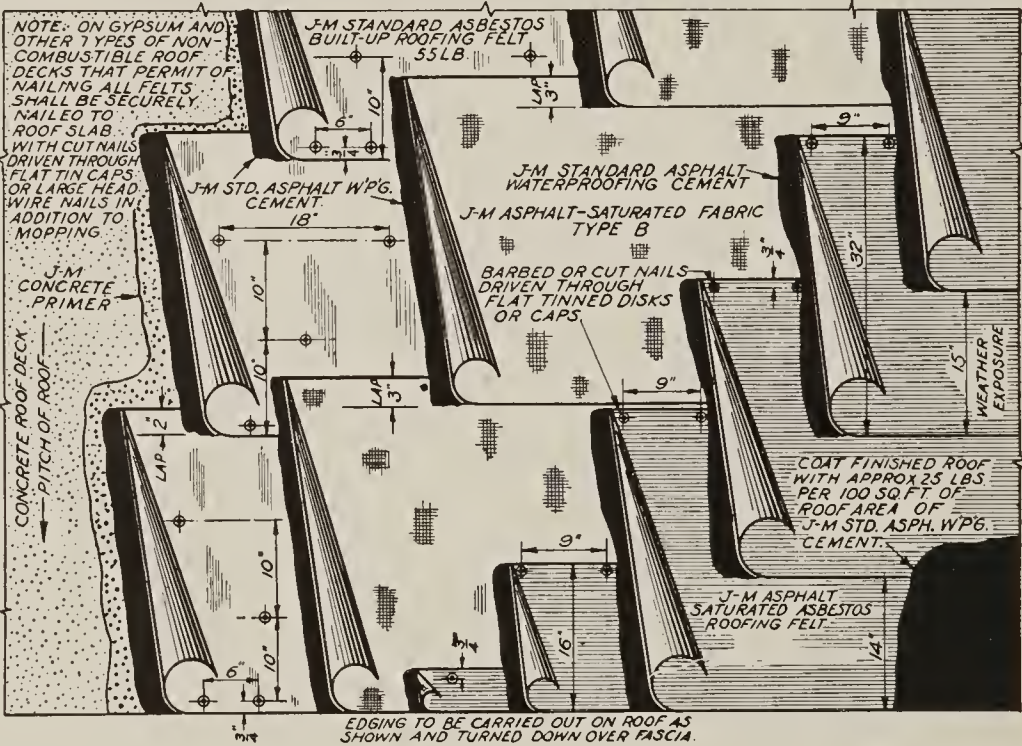
BASE FELT: 1 layer of J-M Standard Asbestos Built-up Roofing Felt	55 lb.
WATERPROOFING FABRIC: 1 layer of J-M Type B Asphalt-Saturated Fabric (11 lbs. per 112 sq. ft.)	11 lb.
FINISHING FELTS: 2 layers of J-M 15-lb. Perforated Asbestos Felt or 20-lb. Asphalt-Saturated Asbestos Roofing Felt	30 or 40 lb.
PRIMER: J-M Concrete Primer (8 lbs. per gallon)	
Over concrete	1 gal.
Over gypsum	1 1/2 to 2 gal.
WATERPROOFING CEMENT: J-M Standard Waterproofing Cement	
For mopping deck and between felts	120 lb.
For surface finish	25 lb.

ROOF DECK

Deck construction, including cants, coves or fillets, shall be properly graded to gutters and drains, leaving all surfaces smooth, clean, sound and dry, in satisfactory condition to receive the roofing.

INSTALLATION

General—All roofing felts shall be turned up 2" on all vertical surfaces without being cemented thereto. All nails shall be driven through flat metal disks.



Roofing—Coat all surfaces, which are to receive the roofing, with the primer and allow to dry. Where necessary, on gypsum, apply two coatings.

If deck is composed of precast units, the primer and asphalt shall be omitted 4" each side of all joints.

Lay one thickness of the base felt, lapping the sheets 2", mopping the full width under each with the asphalt and, if roof construction permits, nailing at 6" centers through the laps and at 18" centers through the longitudinal center of each sheet in two lines spaced 10" apart, the nails to be staggered.

Over the base felt, lay one ply of the waterproofing fabric, lapping each sheet 3" and mopping the full width under each with the asphalt waterproofing cement.

Over the waterproofing fabric, lay two plies of the 15 or 20-lb. felt, lapping each sheet 17" over the preceding one, mopping the full width under each with the asphalt waterproofing cement and, if roofing construction permits, nailing at 9" centers adjacent to the back edge.

Coat the entire surface with not less than 25 lbs. of the asphalt waterproofing cement per 100 sq. ft.

Flashing—(Copy from J-M Standard Specification for Flashing, page 26.)

(If a bond is required, add the following:)

GUARANTEE

(Copy from Specification No. 203, above.)



## SPECIFICATION No. 125

## J-M 20-YEAR ROOF OVER INSULATION ON ANY TYPE OF DECK

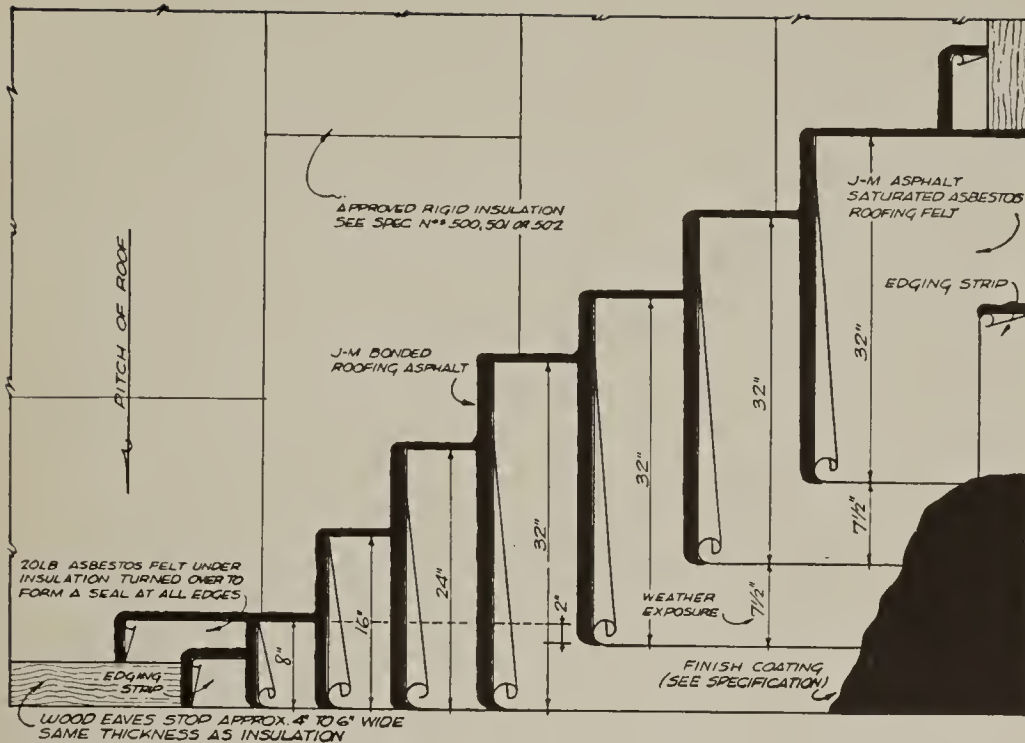
Surface: SMOOTH

Felts: ASBESTOS

Waterproofing: ASPHALT

Insulation: J-M ROOF INSULATION

Inclines: 1/2 in. to 6 inches per foot



### BILL OF MATERIALS PER 100 SQ. FT.

<b>FELTS:</b> 4 layers of J-M 15-lb. Perforated Asbestos Felt or 20-lb. Asphalt-Saturated Asbestos Roofing Felt.....	60 or 80 lb.
<b>ASPHALT:</b> J-M Bonded Roofing Asphalt	
For mopping between felts.....	100 lb.
For mopping felt to deck.....	30 lb.
(See also specification for application of insulation.)	
<b>ROOF COATING:</b> J-M Regal Roof Coating (Black) (8 lb. per gal.)	1 gal.

### ROOF DECK

Roof construction, including cants, coves or fillets, shall be properly graded to gutters and roof drains, leaving all surfaces smooth, clean, sound and dry, in satisfactory condition to receive the roofing.

### INSTALLATION

General—The roof felts shall be turned up 2" on all vertical surfaces without being cemented thereto. The felt applied under insulation shall be similarly turned up a distance 6" greater than the thickness of such insulation and shall overhang all roof edges a similar amount. All nails shall be driven through flat metal disks.

Insulation—(Copy from J-M Standard Specification: No. 500, over wood; No. 501, over non-combustible (except steel); No. 502, over steel deck. See pages 23 and 24.)

Roofing—Lay four plies of the 15 or 20-lb. felt, lapping each sheet 24 1/2" over the preceding one, mopping the full width under each with the asphalt and, if pitch of roof exceeds 3" to the foot, and roof construction permits, nailing at 9" centers adjacent to the back edge. With nailing strips provided as required, nail each sheet at each nailing strip, all nails to be placed so as to be covered by not less than two plies of felt.

Coat the entire surface with roof coating.

Flashing—(Copy from J-M Standard Specification for Flashing, page 26.)

(If a bond is required, add the following:)

### GUARANTEE

The work shall be done by a roofing contractor approved by the manufacturer. The roofing contractor shall furnish a Johns-Manville Twenty-Year Guaranty Bond.

### SPECIFICATION No. 126

## J-M 15-YEAR ROOF OVER INSULATION ON ANY TYPE OF DECK

Surface: SMOOTH                      Felts: ASBESTOS  
Waterproofing: ASPHALT  
Insulation: J-M ROOF INSULATION  
Inclines: 1/2 in. to 6 inches per foot

### BILL OF MATERIALS PER 100 SQ. FT.

<b>FELTS:</b> 3 layers of J-M 15-lb. Perforated Asbestos Felt or 20-lb. Asphalt-Saturated Asbestos Roofing Felt.....	45 or 60 lb.
<b>ASPHALT:</b> J-M Bonded Roofing Asphalt	
For mopping between felts.....	100 lb.
For mopping felt to deck.....	30 lb.
(See also specification for application of insulation.)	
<b>ROOF COATING:</b> J-M Regal Roof Coating (Black) (8 lb. per gal.)	1 gal.

### ROOF DECK

(Copy from Specification No. 125, above.)

### INSTALLATION

General—(Copy from Specification No. 125, above.)

Insulation—(Copy from Specification No. 125, above.)

Roofing—Lay three plies of the 15 or 20-lb. felt, lapping each sheet 22" over the preceding one, mopping the full width, etc. . . . (Follow with remainder of paragraph from Specification No. 125, above.)

Coat the entire surface with roof coating.

Flashing—(Copy from J-M Standard Specification for Flashing, page 26.)

(If a bond is required, add the following:)

### GUARANTEE

(Copy from Specification No. 125, above, except change to "Fifteen-Year".)



## Built-up Roofs for FLAT Decks

In serving the practical purpose of protecting the interior of a building from the weather, the primary function of a roof is to shed water. Yet the economy, simplicity and architectural advantages of the flat roof deck make this a very common type of construction for industrial and commercial buildings, apartment houses and similar structures. Involving, as it does, limited drainage possibilities, the built-up roof for flat-deck construction must be selected with special care.

The most important problem associated with flat-deck roofs is the prolonged contact of the roof with water. On roofs where sufficient slope is provided, the roof is dry soon after the rain has ceased or the snow melted. But, on flat-

deck roofs, poor drainage and low spots from building settlement, and other causes, often permit the water to remain in stagnant pools, until it has evaporated.

Extensive research and field study of the effects of such conditions on waterproofing materials has conclusively proved that coal tar pitch combined with asbestos roofing felts is the most suitable for resistance to this exposure. However, coal tar pitch must be shielded from the sun by a layer of gravel or slag if it is to retain its effectiveness.

On the basis of these conclusions, Johns-Manville has developed the following specifications for flat-deck roofs, utilizing gravel or slag-covered roofs built-up with tar-saturated asbestos roofing felts and coal tar pitch.

### SPECIFICATION No. 600\*

## J-M 20-YEAR ROOF OVER WOOD OR PRE-CAST GYPSUM DECKS

Surface: SLAG or GRAVEL

Felts: ASBESTOS

Waterproofing: PITCH (COAL TAR)

Inclines: Not to exceed 2 inches per foot

\*A built-up roof of this same construction is available, differing only in the use of rag instead of asbestos felt. To specify, make following changes:

### SPECIFICATION NO. 700

FELTS: (Change name of felt to "J-M 15-lb. Bonded Tar-Saturated Rag Felt.")

### BILL OF MATERIALS PER 100 SQ. FT.

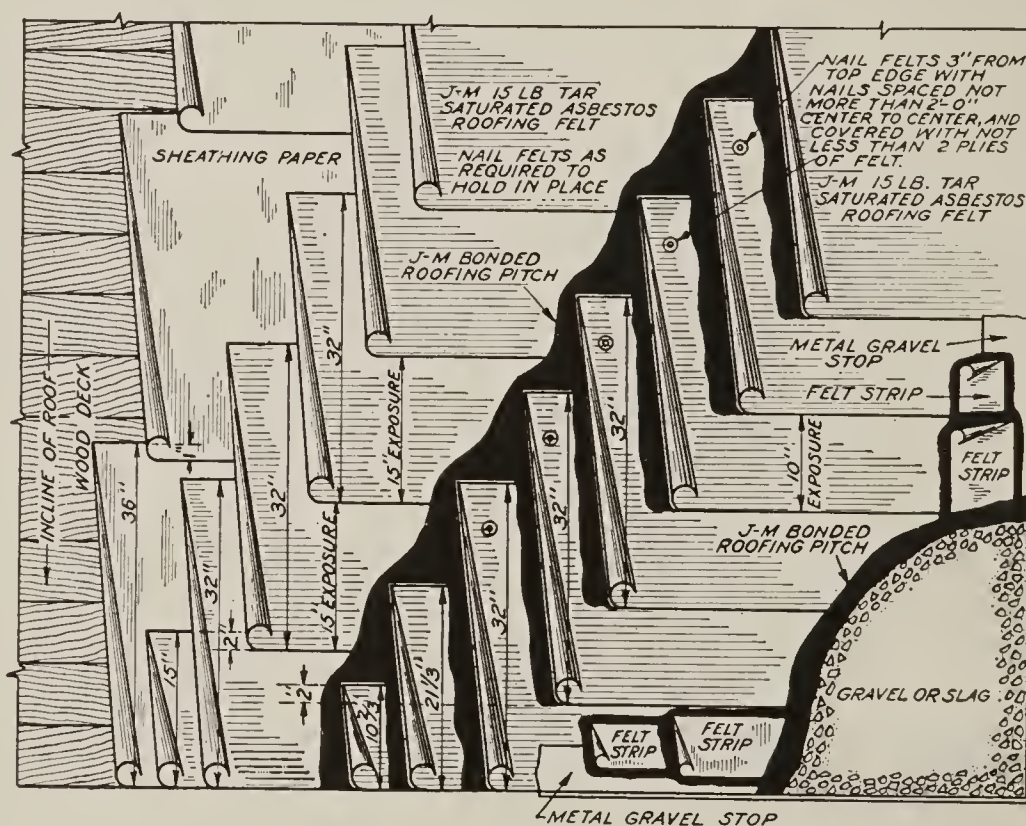
SHEATHING PAPER (used on wood deck only): 1 layer (5 lb. per 100 sq. ft.)	5 lb.
*FELTS: 5 layers of J-M 15-lb. Tar-Saturated Asbestos Roofing Felt (16 1/4 lb. per 108 sq. ft.)	81 lb.
PITCH: J-M Bonded Roofing Pitch	150 lb.
SURFACING: Gravel	400 lb.
or Slag	300 lb.

### ROOF DECK

Roof construction, including cants, coves or fillets, shall be properly graded to gutters and roof drains, leaving all surfaces smooth, clean, sound and dry, in satisfactory condition to receive the roofing.

### INSTALLATION

General—All roofing felts shall be turned up 2" on all vertical surfaces without being cemented thereto. All nails shall be driven through flat metal disks.



Roofing—If application is over wood sheathing, lay one thickness of sheathing paper, lapping the sheets not less than 1".

Lay two plies of the felt, lapping each sheet 17" over the preceding one and nailing sufficiently to hold in place.

Over these felts lay three additional plies of the felt, lapping each sheet 22" over the preceding one, mopping the full width under each with the pitch and nailing at 24" centers, adjacent to the back edge.

Over the entire surface pour a uniform coating of the pitch and embed therein, while hot, not less than 400 lbs. of gravel, or 300 lbs. of slag, for each 100 sq. ft. of roof surface.

Flashing—(Copy from J-M Standard Specification for Flashing, page 26.)

(If a bond is required, add the following:)

### GUARANTEE

The work shall be done by a roofing contractor approved by the manufacturer. The roofing contractor shall furnish a Johns-Manville Twenty-Year Guaranty Bond.



## SPECIFICATION No. 604\*

# J-M 15-YEAR ROOF OVER WOOD OR PRE-CAST GYPSUM DECKS

Surface: SLAG or GRAVEL

Felts: ASBESTOS

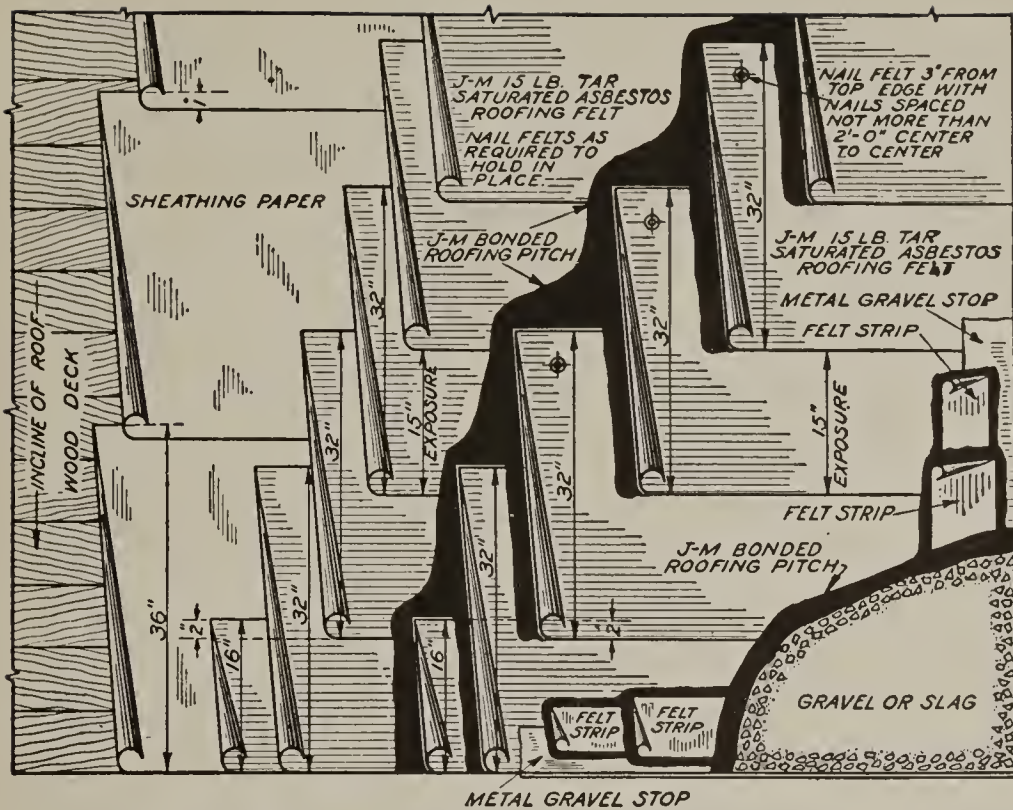
Waterproofing: PITCH (COAL TAR)

Inclines: Not to exceed 2 inches per foot

\*A built-up roof of this same construction is available, differing only in the use of rag instead of asbestos felt. To specify, make following changes:

SPECIFICATION NO. 704

FELTS: (Change name of felt to "J-M 15-lb. Bonded Tar-Saturated Rag Felt.")



## BILL OF MATERIALS PER 100 SQ. FT.

SHEATHING PAPER (used on wood deck only): 1 layer (5 lb. per 100 sq. ft.)	5 lb.
*FELTS: 4 layers of J-M 15-lb. Tar-Saturated Asbestos Roofing Felt (16 1/4 lb. per 108 sq. ft.)	65 lb.
PITCH: J-M Bonded Roofing Pitch	125 lb.
SURFACING: Gravel	400 lb.
or Slag	300 lb.

## ROOF DECK

Roof construction, including cants, coves or fillets, shall be properly graded to gutters and roof drains, leaving all surfaces smooth, clean, sound and dry, in satisfactory condition to receive the roofing.

## INSTALLATION

General—All roofing felts shall be turned up 2" on all vertical surfaces without being cemented thereto. All nails shall be driven through flat metal disks.

Roofing—If application is over wood sheathing, lay one thickness of sheathing paper, lapping the sheets not less than 1".

Lay two plies of the felt, lapping each sheet 17" over the preceding one and nailing sufficiently to hold in place.

Over these felts lay two additional plies of the felt, lapping each sheet 17" over the preceding one, mopping the full width under each with the pitch and nailing at 24" centers, adjacent to the back edge.

Over the entire surface pour a uniform coating of the pitch and embed therein, while hot, not less than 400 lbs. of gravel, or 300 lbs. of slag, for each 100 sq. ft. of roof surface.

Flashing—(Copy from J-M Standard Specification for Flashing, page 26.)

(If a bond is required, add the following:)

## GUARANTEE

The work shall be done by a roofing contractor approved by the manufacturer. The roofing contractor shall furnish a Johns-Manville Fifteen-Year Guaranty Bond.

## SPECIFICATION No. 601\*

# J-M 10-YEAR ROOF OVER WOOD OR PRE-CAST GYPSUM DECKS

Surface: SLAG Waterproofing: PITCH (COAL TAR)

Felts: ASBESTOS Inclines: 2 in. to 6 in. per ft.

## BILL OF MATERIALS PER 100 SQ. FT.

SHEATHING PAPER (used on wood deck only): 1 layer (5 lb. per 100 sq. ft.)	5 lb.
*FELTS: 5 layers of J-M 15-lb. Tar-Saturated Asbestos Roofing Felt (16 1/4 lb. per 108 sq. ft.)	81 lb.
PITCH: J-M Bonded Roofing Pitch (for mopping between felts)	80 lb.
ASPHALT: J-M Bonded Roofing Asphalt (for top surfacing)	45 lb.
SURFACING: Slag	250 lb.

## ROOF DECK

(Copy from Specification No. 604, above.)

## INSTALLATION

General—(copy from Specification No. 604, above.)

Roofing—If application is over wood sheathing, lay one thickness of sheathing paper, lapping the sheets not less than 1".

Lay five plies of the felt, lapping each sheet 26" over the preceding one, mopping under each with the pitch to a width of 22" starting 2" from the exposed edge. Nail each sheet at 12" centers, 8" from the back edge.

Over the entire surface mop a uniform coating of the asphalt and embed therein, while hot, not less than 250 lbs. of slag for each 100 sq. ft. of roof surface.

Flashing—(Copy from J-M Standard Specification for Flashing, page 26.)

(If a bond is required, add the following:)

## GUARANTEE

(Copy from Specification No. 604, above, except change to "Ten-Year.")

\*A built-up roof of this same construction is available, differing only in the use of rag instead of asbestos felt. To specify, make following changes:

SPECIFICATION NO. 701

FELTS: (Change name of felt to "J-M 15-lb. Bonded Tar-Saturated Rag Felt.")



SPECIFICATION No. 602\*

J-M 20-YEAR ROOF  
OVER  
NON-COMBUSTIBLE  
DECKS

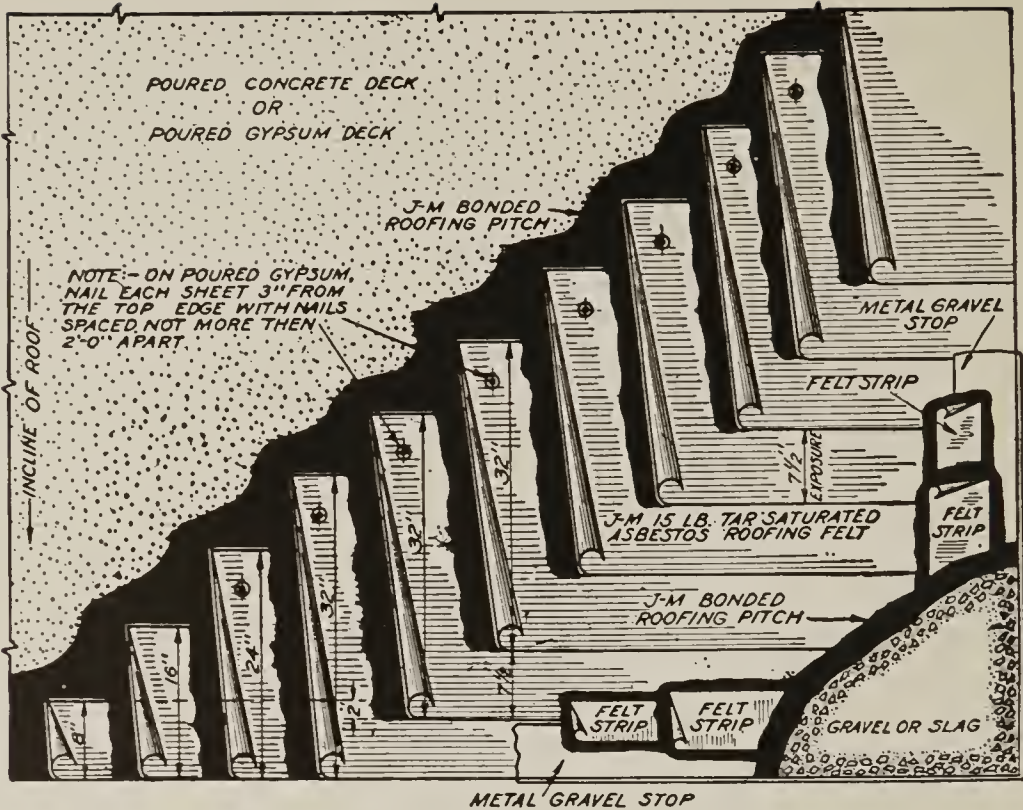
(except precast gypsum or steel)

Surface: SLAG or GRAVEL

Felts: ASBESTOS

Waterproofing: PITCH (COAL TAR)

Inclines: Not to exceed 2 inches per foot†



\*A built-up roof of this same construction is available, differing only in the use of rag instead of asbestos felt. To specify, make following changes:

SPECIFICATION NO. 702

FELTS: (Change name of felt to "J-M 15-lb. Bonded Tar-Saturated Rag Felt.")

BILL OF MATERIALS PER 100 SQ. FT.

*FELTS: 4 layers of J-M 15-lb. Tar-Saturated Asbestos Roofing Felt (16¼ lb. per 108 sq. ft.)	65 lb.
PITCH: J-M Bonded Roofing Pitch	200 lb.
SURFACING: Gravel	400 lb.
or Slag	300 lb.

ROOF DECK

Roof construction, including cants, coves or fillets, shall be properly graded to gutters and roof drains, leaving all surfaces smooth, clean, sound and dry, in satisfactory condition to receive the roofing.

INSTALLATION

General—All roofing felts shall be turned up 2" on all vertical surfaces without being cemented thereto. All nails shall be driven through flat metal disks. If incline exceeds 1" to one foot, the

roof deck shall permit nailing, or nailing strips shall be provided.

Insulation—(If involved, copy from J-M Standard Specification: No. 1000, over wood; No. 1001, over non-combustible (except steel); No. 1002, over steel deck.)

Roofing—Lay four plies of the felt, lapping each sheet 24½" over the preceding one, mopping the full width under each with the pitch.

† If incline exceeds 1" to one foot, the felts shall be nailed adjacent to the upper edge and so that all nails shall be covered by not less than three layers of felt.

If roof construction is of precast units, the pitch applied to the roof surface shall be omitted for a width of 4" each side of all joints between the units.

Over the entire surface pour a uniform coating of the pitch and embed therein, while hot, not less than 400 lbs. of gravel, or 300 lbs. of slag, for each 100 sq. ft. of roof surface.

Flashing—(Copy from J-M Standard Specification for Flashing, page 26.)

(If a bond\*\* is required, add the following:)

GUARANTEE

The work shall be done by a roofing contractor approved by the manufacturer. The roofing contractor shall furnish a Johns-Manville Twenty-Year Guaranty Bond.

\*\*The bond will not cover the roof insulation.

SPECIFICATION No. 605\*

J-M 15-YEAR ROOF  
OVER  
NON-COMBUSTIBLE  
DECKS

(except precast gypsum or steel)

Surface: SLAG or GRAVEL

Felts: ASBESTOS

Waterproofing: PITCH (COAL TAR)

Inclines: Not to exceed 2 inches per foot†

BILL OF MATERIALS PER 100 SQ. FT.

*FELTS: 3 layers of J-M 15-lb. Tar-Saturated Asbestos Roofing Felt (16¼ lb. per 108 sq. ft.)	49 lb.
PITCH: J-M Bonded Roofing Pitch	175 lb.
SURFACING: Gravel	400 lb.
or Slag	300 lb.

ROOF DECK

(Copy from Specification No. 602, above.)

INSTALLATION

General—(Copy from Specification No. 602, above.)

Insulation—(Copy from Specification No. 602, above.)

Roofing—Lay three plies of the felt, lapping each sheet 22" over the preceding one, mopping the full width under each with the pitch. (Follow with remainder of this paragraph and the two following paragraphs from Specification No. 602, above.)

Flashing—(Copy from J-M Standard Specification for Flashing, page 26.)

(If a bond\*\* is required, add the following:)

GUARANTEE

(Copy from Specification No. 602, above, except change to "Fifteen-Year.")

\*\*The bond will not cover the roof insulation.

\*A built-up roof of this same construction is available, differing only in the use of rag instead of asbestos felt. To specify, make following changes:

SPECIFICATION NO. 705

FELTS: (Change name of felt to "J-M 15-lb. Bonded Tar-Saturated Rag Felt.")







## SPECIFICATION No. 613

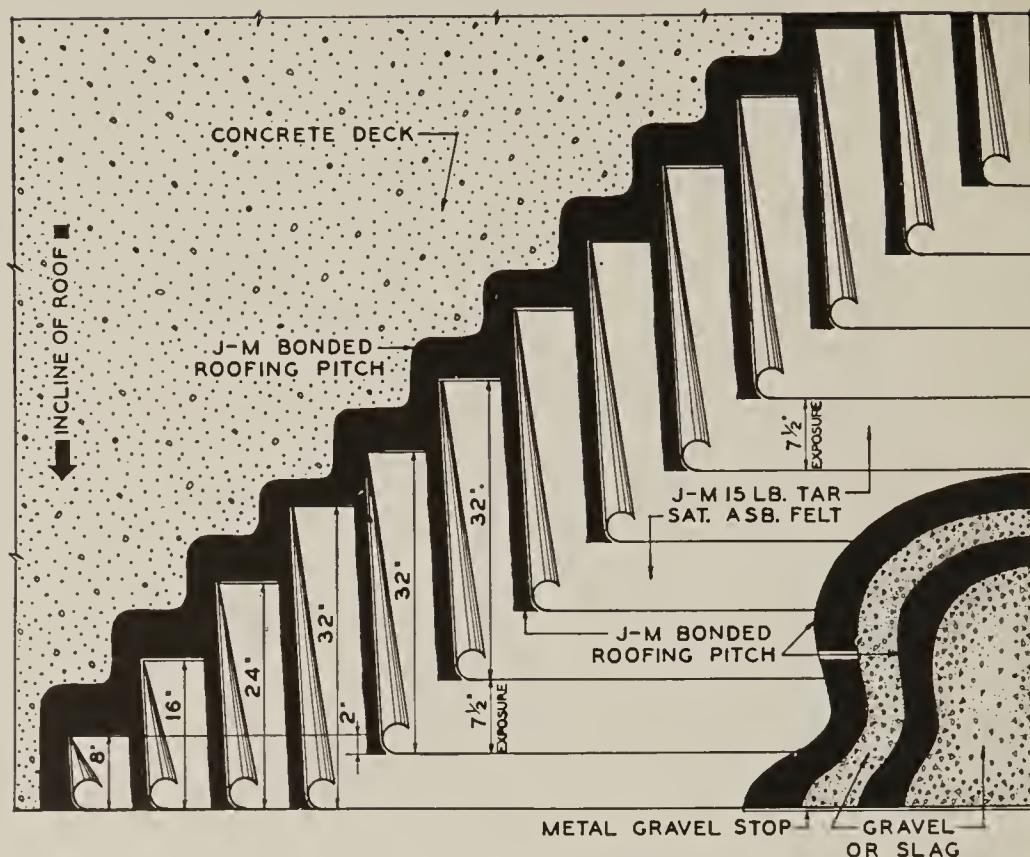
# J-M 10-YEAR ROOF OVER CONCRETE DECK FOR SPRAY POND (DOUBLE SURFACING)

Surface: SLAG or GRAVEL

Felts: ASBESTOS

Waterproofing: PITCH (COAL TAR)

Inclines: Not to exceed 1/2 inch per foot



## INSTALLATION

**General**—All roofing felts shall be turned up 2" on all vertical surfaces without being cemented thereto. All nails shall be driven through flat metal disks.

**Roofing**—Lay four plies of the 15-lb. felt, lapping each sheet 24 1/2" over the preceding one and mopping the full width under each with the pitch.

**Surfacing**—Immediately preceding the application of surfacing material, thoroughly clean the roof surface, pour a uniform coating of the pitch and embed in it, while hot, not less than 400 lbs. of gravel, or 300 lbs. of slag, for each 100 sq. ft. of roof surface.

Remove all loose or excess gravel or slag by lightly sweeping all surfaces and immediately pour another uniform coating of pitch into which, while hot, embed not less than 300 lbs. of gravel, or 200 lbs. of slag, for each 100 sq. ft. of roof surface. All particles shall be firmly embedded so that there shall be no loose particles in the finished job. The surface shall be lightly rolled, if necessary, to accomplish this.

(If a bond is required, consult Johns-Manville.)

\*A built-up roof of this same construction is available, differing only in the use of rag instead of asbestos felt. To specify, make following changes:

### SPECIFICATION NO. 713

FELTS: (Change name of felt to "J-M 15-lb. Bonded Tar-Saturated Rag Felt.")

### BILL OF MATERIALS PER 100 SQ. FT.

*FELTS: 4 layers of J-M 15-lb. Tar-Saturated Asbestos Roofing Felt (16 1/4 lb. per 108 sq. ft.)	65 lb.
PITCH: J-M Bonded Roofing Pitch	300 lb.
SURFACING: Gravel (see specification)	700 lb.
or Slag (see specification)	500 lb.

### DECK

Deck construction, including cants, coves or fillets, shall be properly graded to drains, leaving all surfaces smooth, clean, sound and dry, in satisfactory condition to receive the roofing.

## The importance of using ASBESTOS felts over FLAT roof decks

Over flat decks, the use of tar saturated asbestos felts covered with slag or gravel is the ultimate assurance of roof permanence. Because of their inorganic composition, asbestos felts are immune to the destructive forces of rot and decay. They preserve the Bonded Roofing Pitch between the plies in practically its original condition. Asbestos roofs stay waterproof for years, with minimum upkeep.

action of ice and snow) will often cause the covering of slag or gravel on a flat roof to become partly carried away, exposing the pitch and felt to the sun. When this happens the essential waterproofing oils of the bitumen may soon be leached out. If the felt is asbestos felt, however, *only the surface pitch will be attacked* to any serious degree. The bitumen embedded in the non-capillary fibres of the asbestos felt will yield only after long periods of exposure to severe conditions.



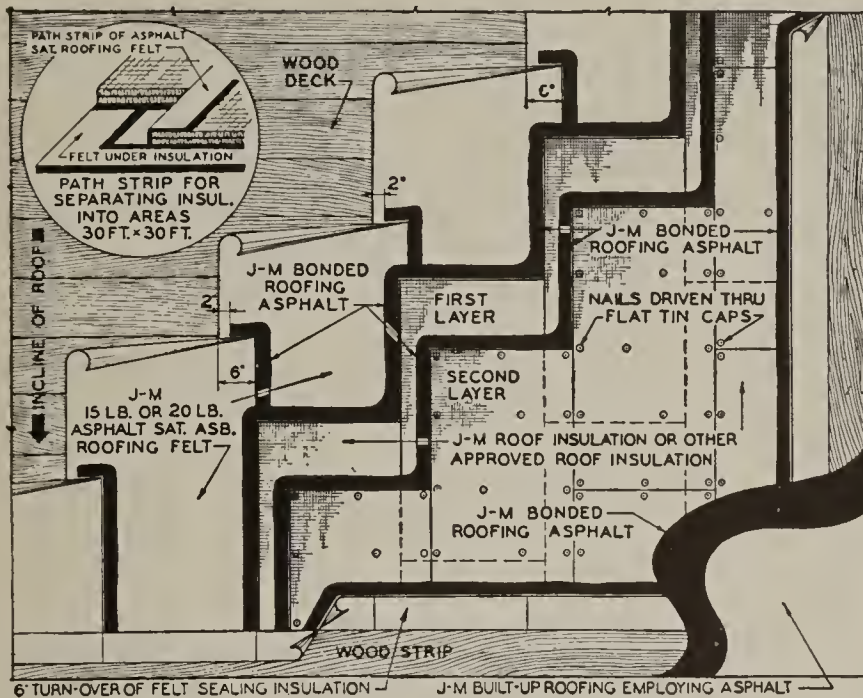
# J-M ROOF INSULATION SPECIFICATIONS

SPECIFICATION No. 500

## J-M ROOF INSULATION ON WOOD DECKS TO BE OVERLAID WITH A J-M ASPHALT BUILT-UP ROOF

### BILL OF MATERIALS PER 100 SQ. FT.

FELT (under insulation): 1 layer of J-M 15-lb. Perforated Asbestos Felt or 20-lb. Asphalt-Saturated Asbestos Roofing Felt.....	15 or 20 lb.
INSULATION: J-M Roof Insulation (state kind and thickness) For each layer of insulation.....	100 sq. ft.
ASPHALT: J-M Bonded Roofing Asphalt For mopping felt.....	30 lb.
For mopping each layer of insulation.....	40 lb.



### ROOF DECK

As J-M Roof Insulation is designed to receive built-up roofing directly over it, the following specification has been prepared to be appended to certain Standard Specifications for J-M Asphalt Built-up Roofs, as given on previous pages. The roof deck, before being considered satisfactory to receive the insulation, shall be in the condition outlined in the pertinent built-up roof specification.

### INSULATION

(a) Lay one ply of the felt, lapping the sheets 6", mopping in the laps with the asphalt and nailing sufficiently to hold in place. This felt shall be turned up on, but not cemented to, all vertical surfaces to a height 6" greater than the thickness of the insulation and shall overhang all roof edges a similar amount.

(b) Lay the insulation with all end joints broken, mopping the full width under each sheet with the asphalt. The edges of the sheets at the joints shall be thoroughly sealed with the asphalt.

(c) The insulation shall be isolated into areas approximately 30 ft. square by path-strippings of one ply of the felt mopped the full

width with the asphalt, to extend not less than 4" over the edge of the insulation in place and not less than 4" under the adjoining insulation to be laid.

**Nailing**—Each sheet of the insulation shall be nailed at 12" centers, adjacent to the longitudinal edges and staggered through the longitudinal center. If it be applied in more than one layer, succeeding layers shall be applied in the same manner as the first layer, the sheets of each layer to break joints with those of the preceding layer, with all nailing done through the top layer.

**Sealing**—The upturned felt at vertical surfaces and roof edges shall be turned down and mopped solidly to the insulation.

### PROTECTION

Insulation shall not be left exposed to the weather. No more insulation shall be laid than can be completely covered with the roofing felts on the same day. At the end of the day's work, roofing felts shall be turned down over the exposed edges of the insulation and mopped solidly.

SPECIFICATION No. 502

## J-M ROOF INSULATION ON STEEL DECKS TO BE OVERLAID WITH A J-M ASPHALT BUILT-UP ROOF

Minimum Pitch: 1/2 inch per foot

### BILL OF MATERIALS PER 100 SQ. FT.

FELT (under insulation): 1 layer of J-M 15-lb. Perforated Asbestos Felt or 20-lb. Asphalt-Saturated Asbestos Roofing Felt.....	15 or 20 lb.
INSULATION: J-M Roof Insulation (state kind and thickness) For each layer of insulation.....	100 sq. ft.
PRIMER (unless steel deck has been shop-coated): J-M Concrete Primer (8 lb. per gal.).....	1 gal.
ASPHALT: J-M Bonded Roofing Asphalt For mopping felts.....	30 lb.
For mopping each layer of insulation.....	40 lb.

### ROOF DECK

(Copy from Specification No. 500, above.)

### INSULATION

(a) If the steel deck has not been shop-coated with asphalt paint, or if such coating is incomplete or has been damaged, the entire deck or such uncoated areas shall be painted with the primer and allowed to dry.

(b) Lay one ply of the felt, lapping the sheets 6" and mopping the full width under each with the asphalt. This felt shall be turned up on, but not cemented to, all vertical surfaces to a height 6" greater than the thickness of the insulation and shall overhang all roof edges a similar amount.

(c) (Copy paragraph (b) of Specification No. 500, above.)

(d) (Copy paragraph (c) of Specification No. 500, above.)

### SECURING OF INSULATION

If the incline of the roof deck exceeds 3" per foot, wood nailing strips, of the same thickness as the insulation and approximately 4" wide, shall be provided and the insulation shall be secured with not less than 5 steel darts or other approved fasteners per sheet. (Follow with the second sentence under "Nailing" in Specification 500, changing word "nailing" to "fastening.")

### SEALING AND PROTECTION

(Copy respective paragraphs of Specification No. 500, above.)



## SPECIFICATION No. 501

# **J-M ROOF INSULATION ON NON-COMBUSTIBLE DECKS TO BE OVERLAID WITH A J-M ASPHALT BUILT-UP ROOF**

**BILL OF MATERIALS PER 100 SQ. FT.**

<b>FELT</b> (under insulation): 1 layer of J-M 15-lb. Perforated Asbestos Felt or 20-lb. Asphalt-Saturated Asbestos Roofing Felt.....	15 or 20 lb.
<b>INSULATION:</b> J-M Roof Insulation (state kind and thickness) For each layer of insulation.....	100 sq. ft.
<b>PRIMER:</b> J-M Concrete Primer (8 lb. per gal.):	
Over concrete.....	1 gal.
Over gypsum.....	1½ to 2 gal.
<b>ASPHALT:</b> J-M Bonded Roofing Asphalt	
For mopping each layer of insulation.....	30 lb.

**ROOF DECK**

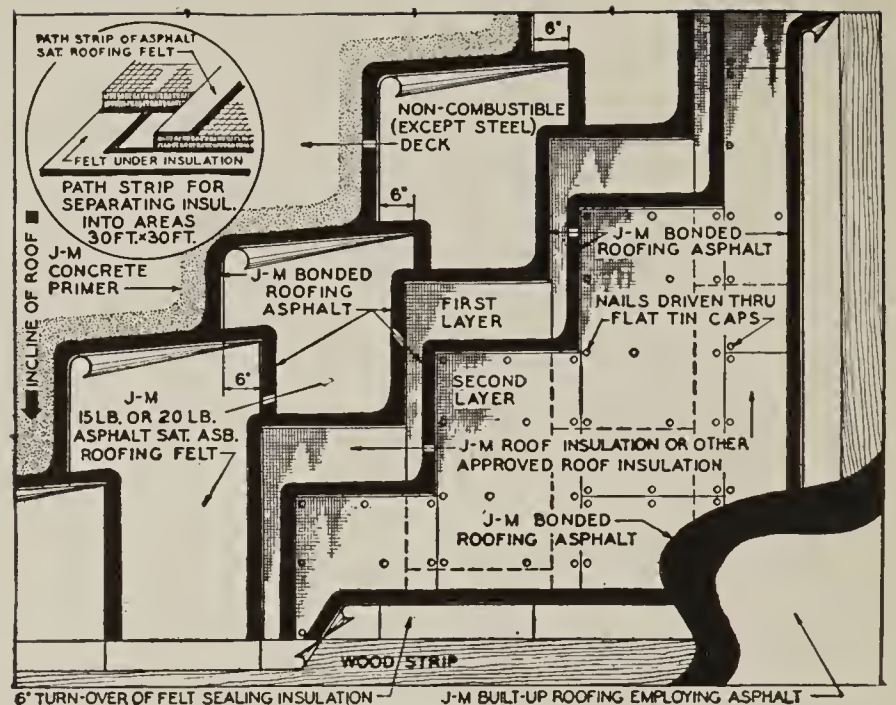
(Copy from Specification No. 1001 below.)

**INSULATION**

(a) Coat all surfaces which are to receive the insulation with the asphalt primer and allow to dry.

If deck is composed of precast units, the primer and asphalt shall be omitted 4" each side of all joints between the units.

(b) (Copy paragraph (b) of Specification No. 502, on previous page.)



(c) (Copy paragraph (b) of Specification No. 500, on previous page.)

(d) (Copy paragraph (c) of Specification No. 500, on previous page.)

**Nailing**—If roof construction permits, nail each sheet at 12" centers adjacent to the longitudinal edges and staggered through the longitudinal center. With nailing strips provided as required, each sheet shall be nailed at each strip at 12" centers.

**Sealing**—(Copy from Specification No. 500, on previous page.)

**PROTECTION**

(Copy from Specification No. 500, on previous page.)

## SPECIFICATION No. 1001

# **J-M ROOF INSULATION ON NON-COMBUSTIBLE DECKS TO BE OVERLAID WITH A J-M BUILT-UP ROOF USING COAL TAR PITCH**

**BILL OF MATERIALS PER 100 SQ. FT.**

<b>FELT</b> (under insulation): 1 layer of J-M 15-lb. Tar-Saturated Felt (same as used in roofing over insulation).....	15 lb.
<b>INSULATION:</b> J-M Roof Insulation (state kind and thickness) For each layer of insulation.....	100 sq. ft.
<b>PRIMER:</b> J-M Concrete Primer (8 lb. per gal.):	
Over concrete.....	1 gal.
Over gypsum.....	1½ to 2 gal.
<b>PITCH:</b> J-M Bonded Roofing Pitch	
For mopping felt.....	30 lb.
For mopping each layer of insulation.....	40 lb.

**ROOF DECK**

As J-M Roof Insulation is designed to receive built-up roofing directly over it, the following specification has been prepared to be appended to certain Standard Specifications for J-M Asphalt Built-up Roof, as given on previous pages. The roof deck, before being considered satisfactory to receive the insulation, shall be in the condition outlined in the pertinent built-up roof specification.

**General**—(a) A wood strip of the same thickness as the insulation and approximately 4" wide shall be provided, secured to the roof deck adjoining all eaves, to act as a stop for the insulation.

(b) If incline exceeds 1" to one foot, the roof deck shall permit nailing or wood nailing strips shall be provided.

**Felt Under Insulation**—If application is over gypsum, coat all surfaces which are to receive the roofing with the primer and allow to dry. Lay one ply of the felt, lapping the sheets 6" and mopping the full width under each with the pitch.

This felt shall be turned up on, but not cemented to, all vertical surfaces to a height 6" greater than the thickness of the insulation and shall overhang all roof edges a similar amount.

If roof construction is of precast units, the primer and pitch shall be omitted for a width of 4" each side of all joints between the units.

**INSULATION**

**Insulation**—Lay the insulation with all end joints broken, mopping the full-width under each sheet with the pitch. The edges of the sheets at the joints shall be thoroughly sealed with the pitch. The insulation shall be isolated into areas approximately 30' square by path-strippings of one ply of the felt, mopped the full width with the pitch, to extend not less than 4" over the edge of the insulation in place and not less than 4" under the adjoining insulation to be laid.

**Nailing**—(a) If roof construction permits, nail each sheet of the insulation at 12" centers adjacent to the longitudinal edges and staggered through the longitudinal center. With wood nailing strips provided as required, nail each sheet at each nailing strip at 12" centers.

(b) If to be applied in more than one layer, succeeding layers shall be applied in the same manner as the first layer, the sheets of each layer to break joints with those of the preceding layer, with all nailing done through the top layer.

**Sealing**—The up-turned felt at vertical surfaces and the overhanging felt at roof edges shall be turned down and mopped solidly to the Roofinsul.

**PROTECTION**

Insulation shall not be left exposed to the weather. No more insulation shall be laid than can be completely covered with the roofing felts on the same day. At the end of the day's work, roofing felts shall be turned down over the exposed edges of the insulation and mopped solidly.



## SPECIFICATION No. 1000

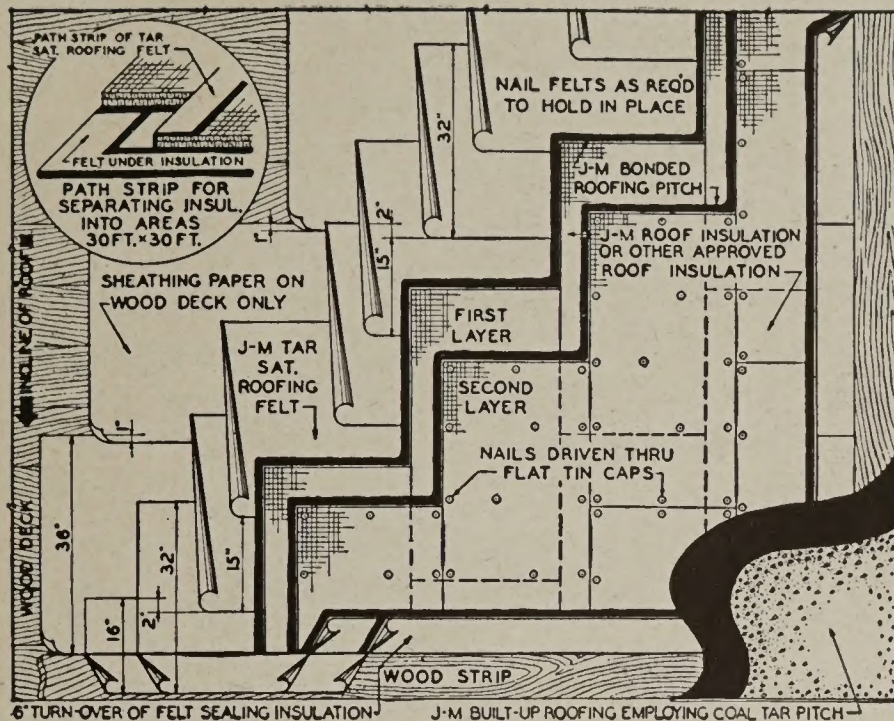
# J-M ROOF INSULATION

## ON WOOD OR PRECAST GYPSUM DECKS

## TO BE OVERLAID WITH A J-M BUILT-UP ROOF USING COAL TAR PITCH

### BILL OF MATERIALS PER 100 SQ. FT.

<b>SHEATHING PAPER:</b> (over wood deck only): 1 layer (5 lb. per 100 sq. ft.)	5 lb.
<b>FELTS</b> (under insulation): 2 layers of J-M 15-lb. Tar-Saturated Felt (Same as used in roofing over insulation.)	30 lb.
<b>INSULATION:</b> J-M Roof Insulation (state kind and thickness) For each layer of insulation	100 sq. ft.
<b>PITCH:</b> J-M Bonded Roofing Pitch For mopping each layer of insulation	40 lb.



### ROOF DECK

(Copy from Specification No. 1001, on opposite page.)

### INSULATION

General—(Copy paragraph (a) of Specification No. 1001.)

The felts applied under the insulation shall be turned up on, but not cemented to, all vertical surfaces to a height 6" greater than the thickness of the insulation and shall over-hang all roof edges a similar amount.

**Felts Under Insulation**—If application is over wood sheathing, lay one thickness of sheathing paper, lapping the sheets not less than 1".

Lay two plies of the felt, lapping each sheet 17" over the preceding one and nailing sufficiently to hold in place.

Insulation (Copy from Specification No. 1001, opposite.)

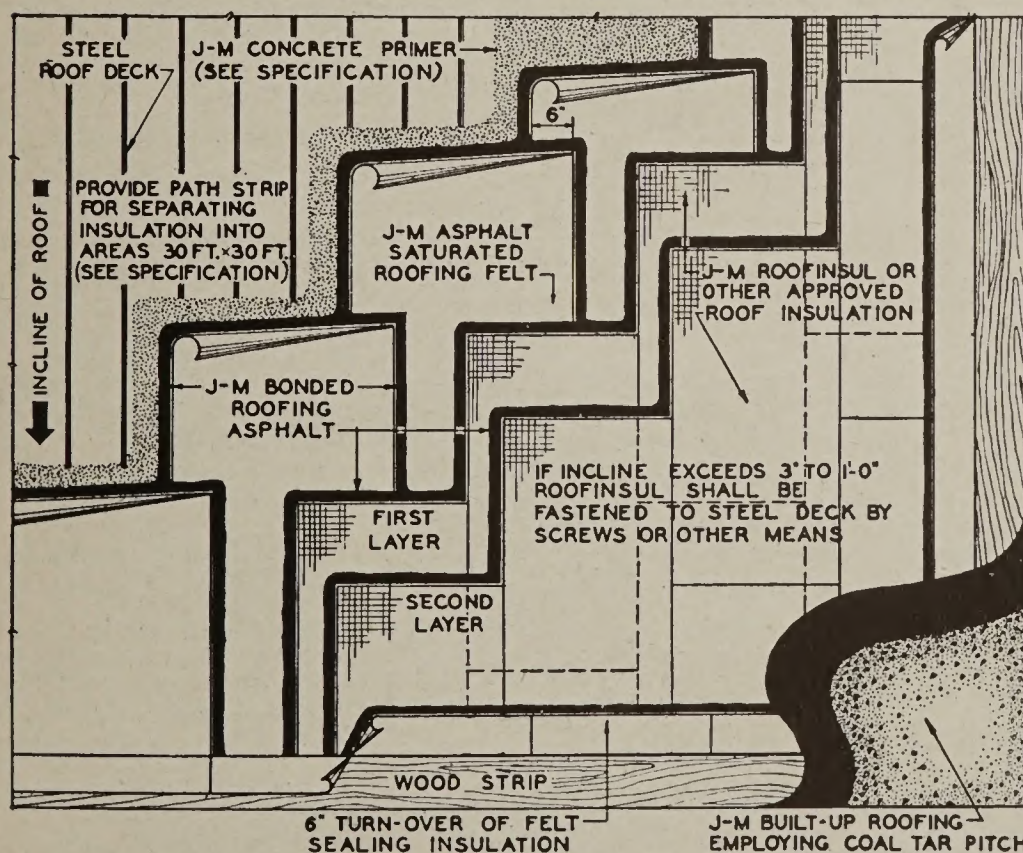
**Nailing**—Nail each sheet of the insulation at 12" centers adjacent to the longitudinal edges and staggered through the longitudinal center.

(Continue with paragraph (b) of Specification No. 1001.)

**Sealing**—(Copy from Specification No. 1001, on opposite page.)

### PROTECTION

(Copy from Specification No. 1001, on opposite page.)



### ROOF DECK

(Copy from Specification No. 1001, on opposite page.)

### INSULATION

General—(a) (Copy paragraph (a) of Specification No. 502, on previous page.)

(b) (Copy paragraph (a) of Specification No. 1001, on opposite page.)

**Felt Under Insulation**—Lay one ply of the felt, lapping each sheet 6" over the preceding one and mopping the full width under each with the asphalt.

(Copy third paragraph under this head in Specification No. 1001, opposite.)

Insulation—(Copy from Specification No. 1001, opposite.)

### SECURING OF INSULATION

(Copy from Specification No. 502, on previous page.)

### SEALING AND PROTECTION

(Copy from Specification No. 1001, on opposite page.)

## SPECIFICATION No. 1002

# J-M ROOF INSULATION

## ON STEEL DECKS

## TO BE OVERLAID WITH A J-M BUILT-UP ROOF USING COAL TAR PITCH

Minimum Pitch: 1/2 inch per foot

### BILL OF MATERIALS PER 100 SQ. FT.

<b>FELT</b> (under insulation): 1 layer of J-M 15-lb. Asphalt-Saturated Felt (Same as used in roofing over insulation.)	15 lb.
<b>INSULATION:</b> J-M Roof Insulation (state kind and thickness) For each layer of insulation	100 sq. ft.
<b>PRIMER:</b> (Unless steel deck has been shop-coated): J-M Concrete Primer (8 lbs. per gal.)	1 gal.
<b>ASPHALT:</b> J-M Bonded Roofing Asphalt For mopping felt	30 lb.
For mopping each layer of insulation	40 lb.



## The critical part of a roof is the Flashing

MORE than at any other place on a roof, a leak is apt to occur at the junction formed by the roof deck and a vertical surface, such as a parapet wall, skylight curb or wall of an adjacent building. Most roof decks are separate units from these vertical surfaces and are constructed of different materials. There is a natural weakness at the angle, due to shrinkage of the material, expansion or contraction, or other movement of the building. Also, the wall absorbs a certain amount of moisture. For this reason it is most desirable that the flashing should go all the way through the wall. This method isolates the roof deck and keeps water from seeping down through the wall and under the roofing.

Johns-Manville has designed several types of flashing so that any of the different conditions encountered in a roof can

be handled successfully. In designing these flashings, the application of roofing and flashing have definitely been made two separate operations.

Before any work is done, a cant strip, a "V"-shaped piece of lumber, should be installed in the angle formed by the roof and the vertical surface, so that instead of a sharp angle there is formed a gradual slope.

Johns-Manville Asbestos Flashing Felts are made from the same basic materials as the asbestos roofing felts. The waterproofing or cementing agent is Johns-Manville Asbestile, a heavy-bodied, plastic cement composed of asbestos fibres, asphalt and other mineral ingredients, which hardens after application and *becomes a part of the wall itself.*

### J-M ASBESTILE FLASHING SYSTEM (10-YEAR BOND)

Johns-Manville Flashing may be installed to cover completely the top and inside face of parapet walls, to extend through walls, or to extend not less than 8" high on the inside face only. J-M Flashing may also be used with a sheet metal cap flashing built into the walls, or it may be used in conjunction with raggle blocks. As Johns-Manville Flashing is used only in connection with Johns-Manville Built-up Roofing, the following specification has been prepared to be appended to the Standard Specifications for such Built-up Roofs:

The height of flashing on parapet walls shall be (*state whether "not less than 8"" or "so as to cover completely entire inside face of wall and top of wall under coping to within 2" of outside face" or "not less than 8" with cap flashing built into and extended through wall to form a dampproof course."* If flashing is to be carried into raggle block, so state.)

The height of flashing on high walls shall be (*state whether "same height as on adjoining parapet walls" or "not less than 8", with cap flashing built into and extended through wall to form a dampproof course."*)

All masonry surfaces which are to receive the base or cap flashing shall be coated with J-M Concrete Primer and allowed to dry.

### BASE FLASHING SPECIFICATION (*See drawings on next page.*)

Lay one thickness of the 15-lb., or 20-lb. roofing felt to extend not less than 6" high on the vertical surface to be flashed, and not less than 4" on the roof, lapping the sheets 3", mopping the full width under each with asphalt, or with pitch, if applied with roofs employing pitch.

A base flashing composed of J-M Asbestos Base Flashing Material shall be applied directly over and entirely covering the 15-lb. or 20-lb. roofing felt, cemented to it with the asphalt or pitch.

The base flashing shall be nailed, adjacent to its upper and end edges, with large head nails spaced on not to exceed 4" centers driven into the brick joints or the nailing strip.

The edge of the base flashing on the roof shall be covered with a 4" wide strip of 15-lb. Asbestos Felt, embedded in and coated over with asphalt or pitch.

The end joints shall be covered with Asbestile, as specified under "Cap Flashing." (*See opposite page.*)

On skylight curbs, etc., the flashing shall extend the full height, and turn over on top the full width, of the curb.

*If no nailing facilities have been provided for securing the upper edge of the base flashing, a five-course cap and base flashing will be acceptable, constructed of alternating layers of Asbestile and 15-lb. Asbestos Felt. Such flashing shall be applied in a manner similar to that specified later for the application of cap flashing to full height of wall, repeating the operations described to provide three layers of Asbestile and two layers of felt. Such flashing shall extend on the vertical surfaces and on the roof the same distance as specified for the flashing method it displaces.*

### SPECIFICATION FOR BASE FLASHING WITH RAGGLE BLOCK

The groove in the raggle block shall be coated with J-M Concrete Primer and allowed to dry.

One thickness of the 15-lb. or 20-lb. roofing felt shall be applied to extend not less than 4" on the roof, to cover the cant entirely, and to extend to the full depth of the groove in the raggle block. This felt shall be embedded in asphalt, (or, if applied with roofs employing pitch, either such pitch or asphalt may be used) on the roof and cant, and in a layer of J-M Ready-mixed Asbestile, approximately  $\frac{1}{8}$ " thick, in the groove in the raggle block.

One thickness of J-M Asbestos Base Flashing Material shall be applied directly over and entirely covering the 15-lb. or 20-lb. felt and similarly cemented to it with the asphalt or pitch and the Asbestile. The base flashing shall be nailed adjacent to the groove, into the joints between raggle blocks. At all joints of the base flashing material, and at 12" centers between, wood wedges, primed and coated with Asbestile, shall be driven into the groove to prevent slippage of the flashing. Any remaining voids in the grooves shall be caulked with Asbestile and oakum. A layer of Asbestile,



approximately  $\frac{1}{8}$ " thick, shall be troweled in place to extend not less than 3" on the cant and 2" on the face of the raggle block to cover entirely the groove in the raggle block.

A strip of the 15-lb. or 20-lb. felt not less than 4" wide shall be embedded therein and a second layer of Asbestile, of the same thickness as the first, troweled over and finished to a feather edge and to a straight line at the upper and lower edges.

The edge of the base flashing on the roof shall be covered with a 4" wide strip of the 15-lb. felt embedded in and coated over with asphalt or pitch.

The end joints of the base flashing shall be covered with Asbestile as specified under "Cap Flashing."

## CAP FLASHING SPECIFICATIONS

(See drawings below)

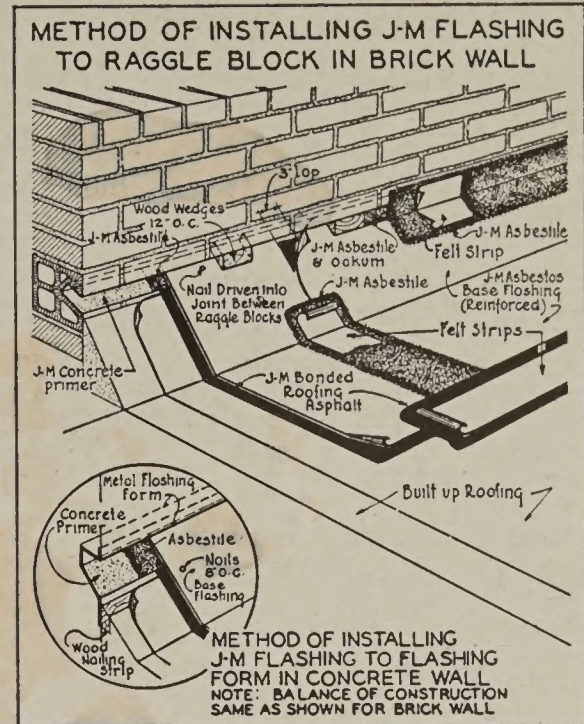
**When J-M Flashing is specified to be not less than 8 ins. high or when sheet metal cap flashing is to be used with J-M Flashing**

A layer of Asbestile, approximately  $\frac{1}{8}$ " thick and not less than 5" wide, shall be troweled in place to cover the nail heads, the upper edge of the base flashing and the adjoining surface of the wall. A strip of 15-lb. Asphalt-saturated Asbestos Felt not less than 4" wide shall be embedded therein and a second layer of Asbestile, of the same thickness as the first, troweled over and finished to a feather edge and to a straight line at the upper and lower edges. If a sheet metal cap flashing is specified, the Asbestile cap flashing shall extend to the point where such metal flashing protrudes from the wall.

End laps in base flashing shall be similarly covered.

**When J-M Flashing is specified to extend full height of wall under coping to within 2 ins. of outside face**

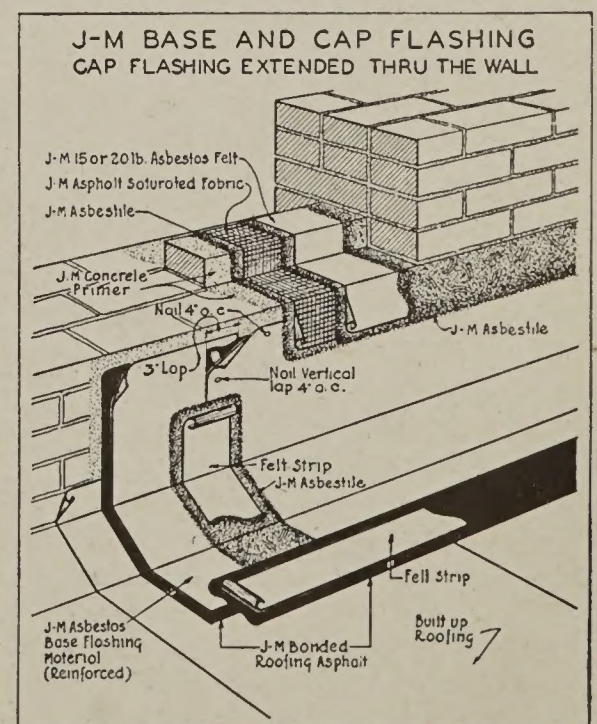
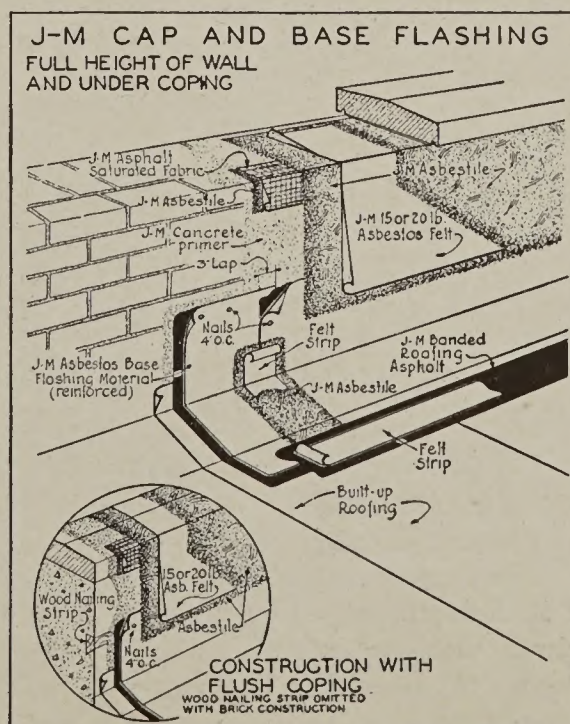
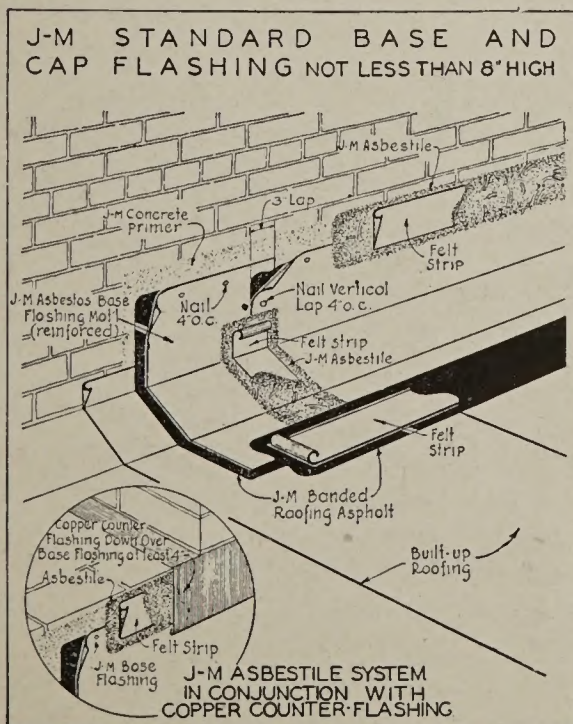
A layer of Asbestile, approximately  $\frac{1}{8}$ " thick, shall be troweled in place to cover the nail heads and the upper edge of the base flashing not less than 4" and the entire inside face and top of the wall (under the coping) to within 2" of the outside face. One thickness of 15-lb. Asphalt-saturated Asbestos Felt shall be embedded therein, with the sheets lapped 3" and sealed with Asbestile, and a second layer of Asbestile, of the same thickness as the first, troweled over and finished to a feather edge and to a straight line at the lower edge.



**When J-M Flashing is specified to be not less than 8 ins. high with cap flashing extended through wall**

One ply J-M Type B Asphalt-saturated Fabric shall be applied to the temporary top of the wall, to extend from within 2" of the outside face to the inside face and project so as to cover the base flashing not less than 4". This fabric shall be cemented to the top of the wall with the asphalt or Asbestile. One ply of 15-lb. Asphalt-saturated Asbestos Felt shall be applied directly over and entirely covering the fabric, cemented to it, and coated over, with the asphalt or Asbestile. The projecting felts shall be temporarily covered for protection during the completion of the wall. After the wall has been completed and the roofing and base flashing installed, the temporary protection shall be removed and a layer of Asbestile, approximately  $\frac{1}{8}$ " thick, shall be troweled in place to cover the nail heads and the upper edge of the base flashing and the inside face of the wall to the underside of the projecting fabric and felt. The projecting fabric shall be embedded therein, over which shall be troweled a second layer of Asbestile, of the same thickness as the first, in which shall be embedded the projecting felt, over which shall be troweled a final layer of Asbestile of the same thickness as the preceding layers, finished to a feather edge and to a straight line at the lower edge and to the line of the projecting fabric and felt at the upper edge.

## Details showing various methods of flashing







*A Specification Manual*

**JOHNS-MANVILLE**

**BUILT-UP ROOFS**

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